MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

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REPORTS OF OBSERVATORIES.*

Khedivial Observatory, Helwân, Egypt.
(Superintendent, Mr. B. F. E. Keeling.)

Time Service.—The Riefler clock, purchased in 1909, has been in use as standard clock, and a great improvement in the accuracy of the time service has resulted.

Reynolds Reflector.—The telescope was used by Mr. Knox Shaw on 121 nights. No work was done with it during July, August, and September, when Mr. Knox Shaw was on leave.

249 plates were exposed during the year :—

22	plates	on 13 nebulæ.
154	,,	on Halley's Comet.
4	,,	on Comet 1910 *a*.
3	,,	in search of d'Arrest's Comet.
3	,,	in search of Brooks' Comet.
2	,,	on Nova Sagittarii (2).
3	,,	on the lunar eclipse of November 16.
2	,,	miscellaneous fields.

The remainder of the plates, 56 in number, were taken for the purpose of testing and adjusting the instrument.

15 plates were also taken with the 4-inch Cooke lens, of which 8 were on Halley's Comet and 4 on Comet 1910 *a*.

Of the 154 plates of Halley's Comet obtained with the reflector, 17 were taken for position—7 in January and 10 in November and December—and 137 were taken to show the

* Received too late for inclusion in the Annual Report of the Council.

structure of the comet. Positives of 55 photographs of the comet were sent to the Society, and reproductions of them have been published in *Survey Department Papers*, No. 23.

The photography of nebulæ was rather neglected, owing to the presence of Halley's Comet. The photographs obtained during the autumn show on the whole a decided improvement on those obtained during 1909. Positives of 13 nebulæ from plates taken in 1909 have been sent to the Society.

Extensive alterations to the telescope have been made during the year. These included the mounting of a 5-inch refractor as guiding telescope, and slow motions to be used when guiding with this telescope; the raising of the whole pier through 2 feet, so that observations could be taken nearer to the horizon (the parapet of the dome had formerly interfered).

Lunar Photography.—A series of experimental photographs of the Moon amongst the stars were taken by Mr. Wade with a view to a photographic determination of the parallactic inequality.

Geodesy.—The geodetic triangulation up the Nile valley has been continued.

Two azimuths have been observed across the Nile valley, one at Helwân and one some 100 kilometres to the south. In each case the azimuth was observed from each end of the line, and at both places the results showed a considerable local attraction in the prime vertical, amounting at Helwân to 9″. The quantity was much larger than surface orographical features would account for, and accordingly Mr. Wade determined the difference of longitude directly, and found a local attraction amounting to 8″. It is proposed during 1911 to make a more detailed survey of the local attraction across the Nile valley at Helwân.

The discussion of the latitude observations showed that the differences between the latitudes determined at the same station on different nights are far greater than would be expected from the apparent accuracy of the observations of a single night. The matter is being further investigated at Helwân Observatory, where, so far as possible, five nights' observations for latitude are being made every month. A gravity survey with the pendulums used by Captain Scott in the Antarctic has been commenced.

General.—The usual meteorological, seismological, and magnetic observations have been made.

Rotation of Stars about their Axes. By Frank Schlesinger.

(*Communicated by the Secretaries.*)

In the May number of the *Monthly Notices* (vol. lxxi. p. 578) Professor Forbes calls attention under this title to an additional displacement of lines in the spectrum of an Algol variable. This occurs towards the beginning and towards the end of the minimum phase, and is due to the partial eclipse of the rotating brighter star. It is interesting to note that this effect has actually been observed in the case of at least one of these variables, namely, δ Libræ. In the *Publications of the Allegheny Observatory*, vol. i. p. 134, the present writer showed that in this case the velocities at these phases were such as to indicate that the bright star is rotating in the same direction as the orbital motion.

Professor Forbes suggests that it may be possible to determine the speed of rotation by this means, but the practical difficulties in the way of such an attempt are very great. Furthermore, it would be necessary to know the law of diminution of brightness as we go from the centre to the limb of the eclipsed disc. Tidal considerations make it very probable that both bodies in an Algol system rotate in the same direction and in the same time as that of their orbital revolution. If we wished to make this assumption, it would therefore be possible to determine roughly the relative brightness of the eclipsed disc at various distances from its centre. But it would appear to be well-nigh hopeless, with present-day appliances at least, to attempt to determine both this and the rate of rotation from observational material alone.

Allegheny Observatory:
1911 *July* 5.

The Auto-Collimating Spectroheliograph of the Kodaikánal Observatory. By John Evershed. (Plates 19, 20.)

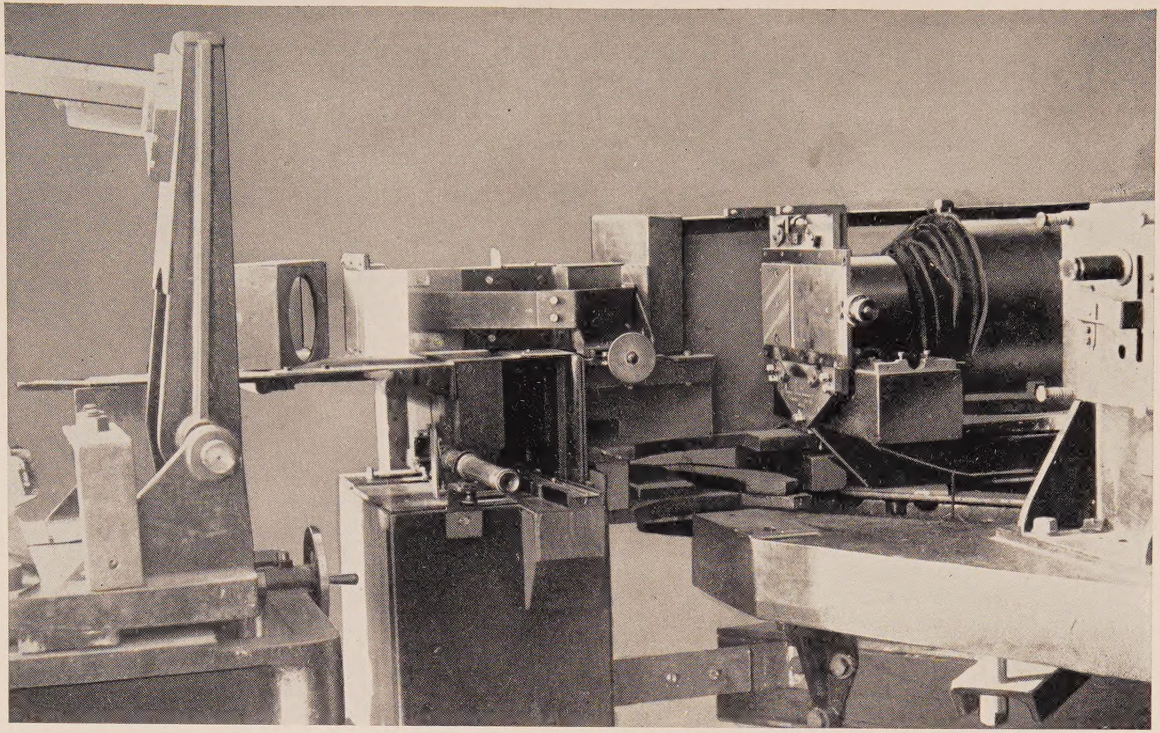
The spectroheliograph in daily use at the Kodaikánal Observatory for photographing the calcium flocculi and prominences in "K" light is one of the type in which a transverse uniform motion is imparted to the whole instrument, the collimator slit traversing a stationary solar image, and the camera slit moving at the same rate across a fixed photographic plate. The movement is effected by means of a heavy weight attached to the framework of the spectroheliograph by a steel tape passing over a pulley, and the necessary uniformity and smoothness of motion is attained by mounting the spectroheliograph on three steel balls running on horizontal plane surfaces. The movement is controlled and regulated by attaching part of the framework to a large plunger working in a cylinder of oil, with a valve to regulate the flow of oil through a small aperture in the plunger.

This instrument, which was built by the Cambridge Scientific Instrument Company, is admirably adapted for monochromatic photography in the violet region of the spectrum, but, owing to the small dispersion of the prismatic spectrum in the red region (two prisms of 60° are used), and to the troublesome readjustments required, involving a change in the curvature of the slits, it is not practically possible to obtain photographs with the hydrogen line Hα.

For this work an entirely new spectroheliograph has been constructed in the observatory workshop. It is of the auto-collimating type, and was designed for use with a train of prisms of large angle, having a 30° prism at the end of the train. This 30° prism was to be silvered on the outer face, in order to return the light a second time through the prisms, and so double the dispersive power of the train. The prisms need to be 4 inches in height in order to include the whole of the beam of light from the collimator; and of five large prisms which have been tested, not one was found to be sufficiently homogeneous to give good definition of the spectrum with the double transmission. As considerable dispersive power is necessary in work with the Hα line, a large Michelson grating was substituted for the prisms. This grating has an effective ruled surface only 2·9 inches in height and 6 inches in length. Notwithstanding the great loss of light involved, this grating has proved fairly efficient for the work, and disc photographs of the Sun in Hα light have been obtained with it regularly since April 1911. Limb photographs showing the prominences are not practically possible, owing to the very long exposures needed; and the disc photographs are slightly defective near the top and bottom of the images, because of the shortness of the ruled lines of the grating.

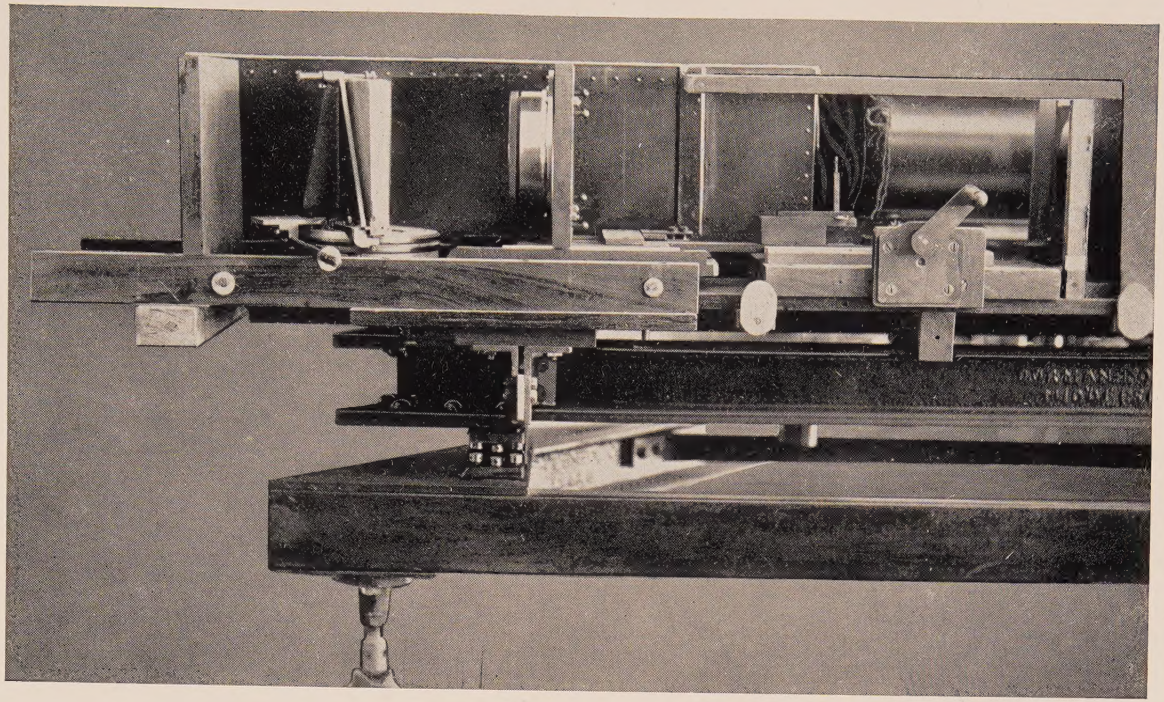
The new spectroheliograph is mounted on iron brackets bolted to the framework of the Cambridge instrument; it shares, therefore, in the very perfect transverse movement of the latter. The collimator slit projects about 15 inches in front of the collimator slit of the Cambridge instrument, as is shown in Plate 19, and the optical axis of the spectroheliograph is displaced laterally about 8½ inches from the optical axis of the 12-inch image-forming objective. The Sun's image is, however, reflected on to the slit by means of two plane mirrors, one fixed immediately in front of the slit, and the other attached to a movable arm, so that it can be placed in the axis of the beam of light from the 12-inch lens when required, or removed out of the way when the Cambridge instrument is being operated. These mirrors are so adjusted relatively that when the 12-inch objective is focussed for "K" photographs with the Cambridge instrument, the Hα image is also in focus for the auto-collimating spectroheliograph. Thus it is possible to go from one instrument to the other without loss of time.

A single meniscus lens by Cooke of 4½ inches diameter and 8 feet focal length serves as collimator and camera lens. The



SLIT END OF TWO SPECTROHELIOGRAPHS.

The slit of the Cambridge spectroheliograph is seen on the right hand, and that of the auto-collimating spectroheliograph behind it and projecting forward towards the left hand. The slit of the latter is covered by an aluminium screen, in front of which is seen one of the two mirrors used for projecting the Sun's image on the slit. The other mirror is attached to the end of the raised arm, which is lowered when this spectroheliograph is to be operated. Underneath the slit to the right is seen the chamber in which the dark slide is placed, and the telescope and right-angle prism for observing the camera slit and the spectrum.



GRATING AND LENS OF THE AUTO-COLLIMATING SPECTROHELIOGRAPH ATTACHED TO THE SIDE OF THE CAMBRIDGE SPECTROHELIOGRAPH.

The small screen for cutting out the white light image of the slit reflected from the front surface of the lens is seen near the focussing handle to the right of the lens.

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back surface is curved to a radius equal to its focal length. It is carefully "squared on," so that the white light image of the collimator slit reflected from the concave back surface coincides with the slit itself. The purpose of this is to eliminate the troublesome reflection which would otherwise be superposed on the spectrum.

The prism table or grating mount is placed immediately in front of the lens, and is supported by an extra strong bracket. The lens is mounted on a sliding frame, with rack and pinion for focussing. Attached to the sliding part is a small blackened screen, placed in the focus of the light reflected from the front surface of the lens. This effectively cuts out the white light from this surface. These arrangements are seen in the photograph (Plate 20).

The dispersed light from the prism train or grating returns through the lens in the direction of the collimating slit, where an image of the spectrum would be formed, but before reaching the slit it encounters a plane mirror, which reflects a short section of the spectrum downwards on to another mirror parallel to the first. The effect of the two mirrors is to bring the spectrum to a focus underneath, and about 7 inches behind the collimator slit. Here is placed the camera slit, attached to the moving parts, and the fixed support for carrying the dark slide. It is perhaps unnecessary to give the details of construction of this part of the apparatus, but some description may be given of the slits, which are of primary importance in spectroheliograph design.

Both camera and collimator slits are fixed in width, that is, they have no screw adjustments, as this is found to be entirely unnecessary. They can be opened or closed only after removal from their supports, and they are adjusted once for all to the width found by experiment to give the best results, and no subsequent alteration is ever made or needed.* This effects a material simplification, both in the construction of the slits and in the working of the spectroheliograph.

Both slits are alike, and worked to the same curvature. The jaws are of platinoid, screwed on to blocks of brass, which are, in turn, clamped to a supporting piece, also of brass, and having a slot along the centre, cut a little longer than the slit. One jaw is immovable when screwed down, and the other has a small range of adjustment, which can be effected by loosening the clamping screws. When the jaws have been worked to the right shape and approximate curvature, they are securely clamped to the perfectly flat surface of the support, and ground on the face with fine emery on a test plane, until the faces of the two jaws are in absolutely the same plane. This is a most necessary condition for the best results, and is easily attained in this form of slit. After the grinding process, the edges are quite sharp, but require to be figured and polished. This is done by unclamping the jaws, and carefully working the edges on specially prepared tools. The

* The width used is 0·06 mm.

tools consist of two pieces of thick plate glass, ground together with emery until perfectly uniform cylindrical surfaces, convex and concave, have been obtained. The radius of curvature is determined from time to time during the grinding by sticking small pieces of plane parallel optical glass to the wet surface of the concave tool, and observing the position of coincidence of the reflected images of a candle flame placed near the centre of curvature. In this way the tools were worked to a radius of 20 feet, which is the curvature of the second order Hα line, computed by Walker's formula, when the collimator slit has the same curvature.

The slits were finally figured and polished on these tools, using a little graphite to facilitate the process.

The collimator slit is attached to the end piece of a brass mounting in a way that permits of a movement of rotation through a small angle by means of a screw acting against a spring. This is for the adjustment of parallelism with the camera slit, the latter being fixed truly vertical. The entire mounting of the collimator slit is movable laterally through a few millimetres by means of a fine-threaded screw. Thus the adjustment for coincidence of the camera slit with the spectrum line is made by moving the collimator slit.

The observation for coincidence is made by the method I have always adopted in spectroheliograph work, and found to be most satisfactory. A window or opening is made at one or both ends of the camera slit, through which a portion of the spectrum is observed with suitable lenses. For the Hα work a single window at the bottom of the camera slit is found to be sufficient. The observation is made through a small telescope, provided with a collimating lens and a right-angle prism. When sunlight is made to fall on the upper part of the collimator slit (which is a few millimetres longer than the camera slit), the adjustment is very easily and quickly made, the grating having already been rotated so as to bring the Hα line within the field of view.

A point of considerable importance with regard to the slits is the prevention of dust particles from settling on the jaws, and causing unsightly lines in the resulting photograph. This trouble has been completely overcome in the case of the collimator slit by the provision of a protecting cover of bright aluminium, having a narrow slot cut in it to admit light to the slit. This cover serves the double purpose of preventing dust from falling on the slit from above, and preventing the slit and adjacent parts from getting unduly heated by the Sun's image, a large proportion of the radiation being reflected from the bright surface.

The camera slit is entirely protected from dust, as it moves in a chamber which is open only on the side where the dark slide is admitted.

In the photographs which accompany Dr. Royds' paper, dust-lines are absent. There are, however, faint shadings at right angles to the direction of the movement of the spectroheliograph.

These are due to very thin clouds passing over the Sun during the exposure.

Owing to the enormous loss of light necessarily involved in the use of a grating, the exposure time needed to get a sufficiently dense image of the Sun's disc on Wratten panchromatic plates is comparatively long. In clear weather about five minutes is required for the Hα line, and during this time the Sun's image must be kept quite stationary, otherwise a distorted photograph results. To effect this a subsidiary guiding arrangement has been devised. The elliptical beam of light coming from the heliostat considerably overlaps the 12-inch objective, and in the path of the waste light a small objective is mounted. With two plane reflectors and an enlarging lens an image of the Sun about 12 inches in diameter is projected on a ground glass screen, conveniently placed for observation, and the slightest movement of the image on the screen, due to irregularities in the driving of the heliostat, is corrected by means of the electric contacts actuating the slow-motion motors on the heliostat.

The second order spectrum is usually employed, as the exposure time needed is very little longer than with the first order, and the higher dispersion is a great advantage. The Hα line in the second order is about 0·30 mm. in width, the slit being about $\frac{1}{5}$th of this. A plane parallel red glass screen is placed 6 inches behind the collimator slit to cut out blue light of the third order, as well as diffuse light from the grating surface.

On the Absorption Markings in Hα Spectroheliograms.

By T. Royds, D.Sc. (Plates 21, 22.)

(*Communicated by John Evershed.*)

Since the beginning of April 1911, Hα spectroheliograms have been taken almost daily at the Kodaikánal Observatory, using the high dispersion obtained in the second order of a grating spectrum. These photographs exhibit many interesting characteristics. Specially noteworthy are the dark markings such as those illustrated in the accompanying reproductions (Plates 21, 22). Similar markings have been photographed by Hale, Deslandres, and others, and evidence has been produced for believing that they are prominences which show on the solar disc by reason of the increased absorption. Hence these plates give an opportunity for a more extensive study of prominences; and such questions as their angular speed of rotation, their distribution in latitude, the height at which absorption is produced, and the Doppler effect in them, are now being studied in this observatory.

It has been found by trial that the best results are obtained when the camera slit of the spectroheliograph is set on the violet side of the centre of the Hα line, the displacement being

about 0·2 Å. When a suitable opportunity occurs it is intended to investigate the character of the Hα line itself in the dark markings. Apparently the absorbing hydrogen has a velocity whose component towards the Earth is of the order of 10 km./sec. It is interesting to note in this connection that St. John has recently found a marked displacement to the violet of the K_3 absorption line in a calcium absorption marking.*

When the camera slit is displaced an equal amount towards the red edge of Hα, the resulting photograph is entirely changed in appearance. The dark absorption markings disappear, as do also the bright emission markings which accompany spot disturbances. In place of them, the entire surface is seen to be covered, more or less uniformly, by a coarse network of irregular dark markings. As the slit is moved towards the violet, the markings, both bright and dark, reappear, and the smaller details covering the entire surface become much finer and more delicate. Occasionally, as on 1911 July 27, a dark marking shows most strongly with the setting on the centre of the line, but generally they show most prominently—even those near the limb—when the slit is placed about midway between the centre and the more refrangible edge of the line. With the slit on the extreme violet edge of the line they tend again to disappear, and the images resemble those obtained near the red edge of the line.

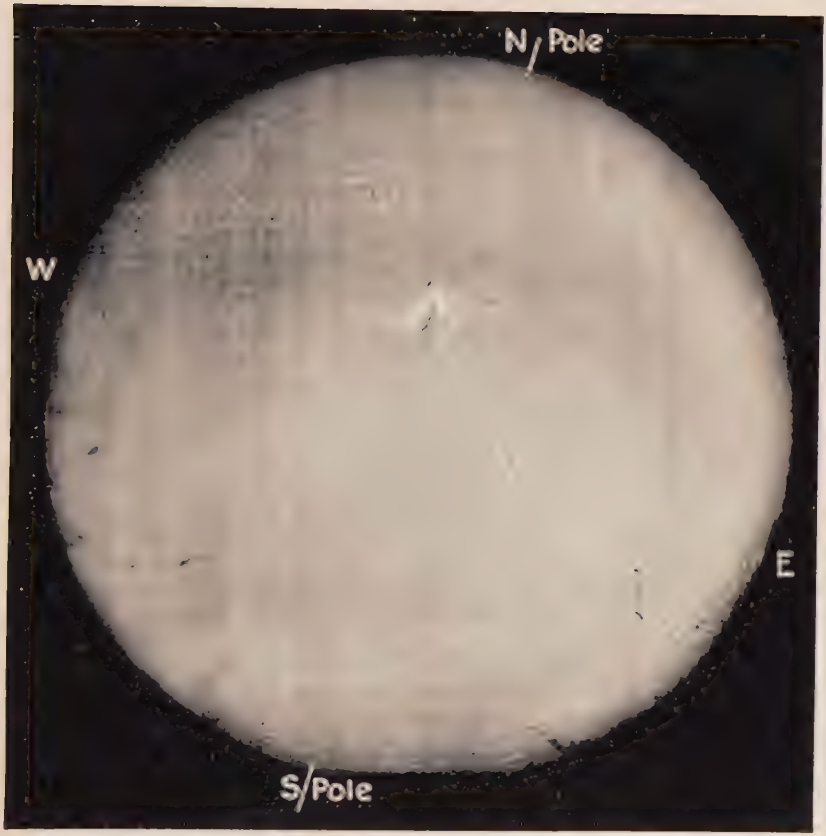
This asymmetrical character of the Hα line cannot be explained by a wrong curvature of the camera slit. This would have the same apparent effect, for the setting is observed at the end of the slit, about $1\frac{1}{2}$ radii from the centre of the Sun's image; and if the curvature did not correspond to that of the spectral line, the photograph would appear to be taken with one side of the line, when actually the centre was being used. In the instrument employed, the slit is curved to a radius of 20 ft., the calculated curvature of the second order Hα line when the collimator slit has the same curvature. Were the slit perfectly straight, however, the error of setting would not be more than 0·03 Å, which is small compared with the displacement observed. The fact that absorption markings appear at the top and bottom as well as at the centre of the slit indicates that the curvature is correct.

Spectroheliograms have also recently been taken with the camera slit on the violet side of the K line. No intense dark markings have so far been obtained, but sometimes faint ones have become visible. Not all of the dark hydrogen markings are evident in K_2 spectroheliograms (the slit set on the centre of the K line), and some faint Ca absorption markings do not appear in the Hα spectroheliograms.

In the illustrations which accompany this paper, in addition to the Hα images, a K_2 image† is given for comparison with Hα of the same date. Generally the dark markings are linear in character (the "filaments" of Deslandres). A good example is

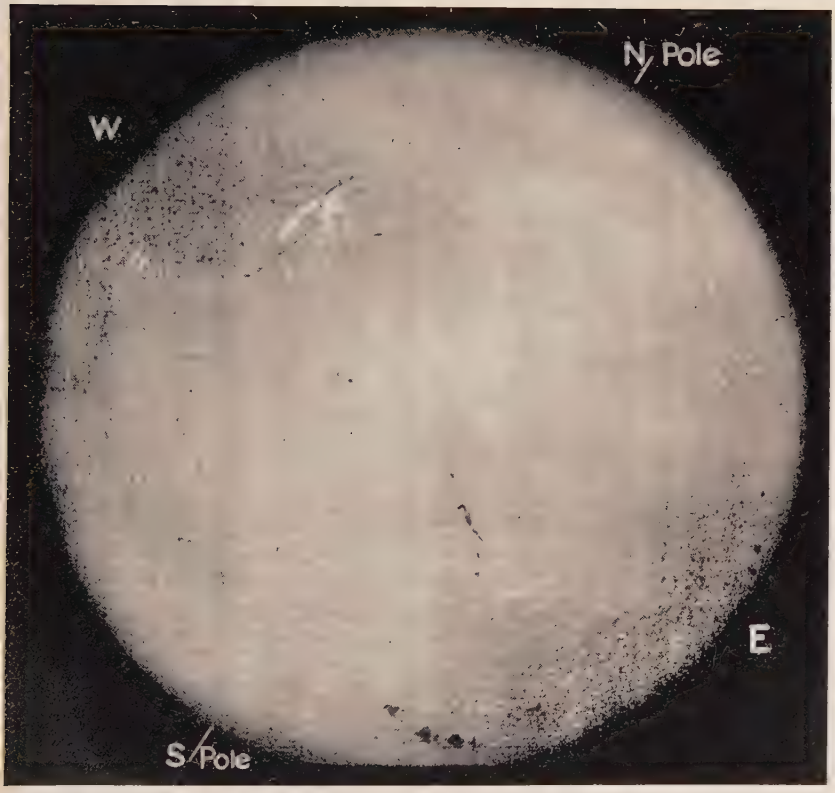
* St. John, *Mount Wilson Contributions*, No. 54.

† Not reproduced, but placed in the Library for reference.



1911 APRIL 8, $8^h\ 53^m$ I.S.T.

SPECTROHELIOGRAM IN Hα LIGHT, KODAIKÁNAL OBSERVATORY.



1911 APRIL 10, 7^h 44^m I.S.T.

SPECTROHELIOGRAM IN Hα LIGHT, KODAIKÁNAL OBSERVATORY.

shown in the photograph dated May 27.* Occasionally more extensive masses are seen, such as that which appears in the N.E. quadrant in the photograph of May 2.* They are quite commonly not associated with sun-spots or bright flocculi. Their distribution in latitude has been investigated for the months of April, May, and June, and found to correspond roughly with the distribution of prominences for the same months. During these months there has been a preponderance of filaments in the southern hemisphere, especially between latitudes 40° and 50°, where the average duration is also greater.

The speed of rotation of many dark filaments has been determined by accurate measures of the longitude from the central meridian of portions which could be identified on successive days. The results show a great variation in different cases, but a mean result gives an apparent sidereal angular speed of 14°·8 *per diem*, which is considerably greater than that of sun-spots. If, however, the absorption is produced at a considerable height above the photosphere, a larger apparent velocity would be expected: thus, if the true angular velocity is assumed to be the same as that of the photosphere, *i.e.* about 14°·2 *per diem*, a mean height of absorption of about 30″ would account for the difference.

Fundamental Astronomy: a Suggestion.

By W. Ernest Cooke, M.A.

The necessity for eliminating systematic errors as far as possible from fundamental determinations of position is so great, and the interest in this matter is at present so keen, that it seems worth while to seriously consider some of the suggestions made by Dr. Chandler in vol. xvii. of the *Harvard Annals*. The main point is the substitution of the "colatitude circle," or small horizontal circle passing through the true celestial pole, for the meridian, as a circle of reference. The following rough sketch of a possible programme differs slightly from Dr. Chandler's suggestions, but is based upon them.

1. *The Instrument.*—Some form of altazimuth. The three essential features are—

1. A good level.
2. A large horizontal circle, read by a pointer and four microscopes.
3. An impersonal micrometer.

The level is placed first in order of importance, because it gives the one and only instrumental correction. The best level supplied by first-class makers is frequently useless as a measuring

* Not reproduced, but placed in the Library for reference.

machine; but good levels can, and for this purpose must, be obtained.

The thread system is to consist of one horizontal wire attached to the registering micrometer, and one vertical wire attached to an ordinary micrometer.

2. *The Observation.*—Take some little care to set as accurately as possible in azimuth. (It is, of course, understood that the telescope is rigidly clamped in altitude and directed as nearly as possible to the true colatitude circle.) Before the star reaches the first of the registering series of horizontal lines, take a few transits across the vertical wire, moving it slightly between each, and record both the time of transit and the reading of the micrometer. Then take the series of transits over the moving horizontal wire by the registering micrometer. Finally, repeat the vertical transits. Read the horizontal circle and level.

3. *The Star List.*—A few pairs of close circumpolars, separated by about 12^h in R.A., and as many as possible of the selected list of Fundamentals. For the present let us assume that the N.P.D. and differences of R.A. of the circumpolars are accurately known. Chandler points out that errors can be eliminated, but there are several methods of determining these positions with great accuracy, and we shall assume that they are known.

4. *The Computation.*—From the circumpolars we determine the error of our telescope pointing, *i.e.* the difference between the mean horizontal wire and the true colatitude circle. We also determine our zero of azimuth. Then for each ordinary star we apply this error of altitude, and error due to variation of the level bubble from some arbitrary reading, to the transit across the mean horizontal wire, and thus obtain the clock time across the true colatitude circle. We next take the mean of the vertical transits, apply a small differential correction to reduce the mean micrometer reading to what it would have been at the moment of crossing the colatitude circle. This, combined with the reading of the azimuth circle, gives us the true azimuth of the star at altitude ϕ. We thus have an isosceles spherical triangle, of which we know the equal sides $(90^\circ-\phi)$ and the included angle (azimuth), and thus can determine both hour angle and declination.

5. *The Latitude.*—This has been assumed as known. As a general rule, the uncertainty in its value is not regarded as one of the serious troubles in meridian work, and so it need not in this case; but if an absolutely independent method is insisted upon, Chandler shows that by selecting suitable stars and forming equations the value of the latitude may be determined by a least-square solution. Or if we may be permitted to accept the clock rate for two or three hours, a simple direct evaluation can be made. For we have $\operatorname{cosec}\phi = \tan h \tan \frac{1}{2}a$, where ϕ is latitude, h = hour angle, and a = azimuth. By choosing stars with small hour angle we can, from an east and west transit, determine $2h$ directly, and hence ϕ. Practically, however, the conditions are not very suitable.

6. *The Scheme in a nutshell.*—Suppose A and B are two groups of stars so situated that when A is passing down across the colatitude circle on the western side B is coming up on the eastern. Start observing A on its eastern passage. Then continue with the working list, taking an occasional pair of circumpolars as a check, until A reaches the western transit. Then observe both A and B, A on the west and B on the east. The groups will be selected so that their mean times of transit occur within a few minutes of one another. We thus obtain the relative R.A.'s absolutely without introducing the clock rate over several hours. Furthermore, we thus determine the clock rate for the interval, and by applying it to the individual transits of the stars between A and B are enabled also to obtain their relative R.A.'s. Moreover, each observation gives us an independent determination of declination. It only remains to introduce the Sun into the working list, as for fundamental meridian observation, to make the entire scheme absolute.

7. *Advantages and drawbacks.*—In the present fundamental methods two serious difficulties are the measurement of large differences of R.A., and the troubles arising from flexure and refraction. These, at all events, are practically absent from the almucantar method as above outlined.

The application of corrections for collimation, level, azimuth, flexure of all sorts, and refraction, in the present method, is replaced by *one* variable error, level, which is separately determined for every star.

The necessity for good workmanship, except for the level, circle, and micrometer, ceases to exist. This is not a plea for economy, but means that we do not depend to the same extent upon our mechanician. Against these striking advantages we note the oblique transit. It is very doubtful, however, whether this presents any difficulty with a moving-wire micrometer.

The limited number of stars available at an observatory in high latitudes may be overcome by having a primary and secondary series. The primary would consist of all stars which cross the colatitude circle, and the secondary must be dependent upon those to some extent. That is, another almucantar of greater z.d. must be chosen as the circle of reference, and the main instrumental constants must depend upon stars selected from the primary set.

Other drawbacks may appear when the details come to be fully worked out, but they are not obvious. Even if they total up to a sum as formidable as those in our present methods, they will at least be *different* ones; and the object of this article is to suggest the above as an *auxiliary* to, not as a *substitute* for, the meridian system.

Perth Observatory, W.A.:
1911 *July* 27.

Occultation of the Star BD − 12°4042 *by Jupiter, observed at Perth Observatory, Western Australia.* By W. Ernest Cooke, M.A., Government Astronomer.

The occultation of BD − 12°4042 by Jupiter was observed on August 12–13 at the Perth Observatory. Instrument, 10-inch guide telescope of the astrograph. Power about 250. Definition mostly bad, but with occasional good flashes.

At "disappearance" the star was followed till August 12, $23^h\ 25^m\ 33{\cdot}5^s$ G.M.T., with tolerable certainty; then the limb boiled. It was glimpsed again two seconds later, and finally just for an instant at $23^h\ 25^m\ 38{\cdot}5^s$ G.M.T., when it was very small but quite distinct. It seemed to gradually diminish for about seven or eight seconds before final disappearance, but the observing conditions were not nearly so good as usual.

At "reappearance" the definition was rather better, although Jupiter was at a lower altitude. It was first glimpsed at August 13, $1^h\ 2^m\ 27{\cdot}1^s$ G.M.T., and seemed to increase during the next few seconds.

Perth Observatory, W.A.:
1911 *August* 14.

Results of Micrometric Measures of Double Stars made with the 28-inch Refractor at the Royal Observatory, Greenwich, in the year 1910.

(*Communicated by the Astronomer Royal.*)

The measures were made with a bifilar position-micrometer on the 28-inch refractor, focal length 28 feet. The power generally used was 670, and occasionally 450 and 1120. The observations were usually made in a dark field with illuminated wires. The initials in the last column are those of the observers, viz.—

S.E.	Mr. Eddington.	W.B.	Mr. Bowyer.
L.	Mr. Lewis.	H.F.	Mr. Furner.
B	Mr. Bryant.		

Micrometric Observations of Double Stars at the Royal Observatory, Greenwich.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch.	Obs.
	h m	° ′	°	″				1910	
Σ 3060 ...	0 1	72 25	120·2	3·44	2	8·5	8·7	·842	W.B.
OΣ 2 ...	0 9	63 31	37·5	0·46	2	6·9	8·3	·818	W.B.
OΣ 4 ...	0 12	54 1	130·8	0·12	1	7·4	8·1	·068	B.
OΣ 12 ..	0 27	35 58	151·6	0·43	2	5·6	5·9	·088	B.
OΣ 18 ...	0 38	86 19	147·6	1·29	1	7·4	9·5	·925	L.
Σ 60 ...	0 44	32 40	238·7	6·50	1	4·0	7·6	·660	L.
β 495 ...	0 44	71 48	215·7	0·63	2	7·5	7·5	·049	B.
Σ 67 ...	0 47	79 53	1·9	1·64	1	8·3	9·0	·832	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
OΣ 20 ...	0 50	71 18	303·2	0·44	2	5·9	7·0	·049	B.
β 1099 ...	0 51	30 7	327·9	0·17	1	6·1	6·8	·107	B.
β 302 ...	0 54	69 5	109·0	0·56	2	6·7	8·1	·049	B.
β 867 ...	0 56	78 33	171·2	0·93	1	8·1	8·6	·057	H.F.
Σ 82 ...	0 56	81 0	299·2	1·61	1	8·3	9·3	·057	H.F.
Ho. 213 ...	0 59	55 1	197·8	0·29	2	7·0	7·0	·049	B.
OΣ 515 ...	1 4	43 16	220·7	0·24	3	4·9	6·5	·068	B.
Ait. 655 ...	1 6	49 16	142·1	0·29	2	7·3	7·7	·049	B.
Σ 102 ...	1 12	41 27	304·9	0·76	1	7·0	8·2	·660	L.
Ho. 9 ...	1 24	68 45	92·0	2 44	1	8·8	9·8	·832	W.B.
Σ 138 ...	1 31	82 49	41·9	1·37	2	7·3	7·3	·880	W.B.
β 509 ...	1 39	80 53	239·4	0·83	1	8·4	8·7	·006	L.
Σ 155 ...	1 40	81 0	147·3	4·63	1	7·5	7·9	·006	L.
Σ 158 ...	1 42	57 17	258·0	2·10	2	8·3	8·8	·845	S.E.
β 510 ...	1 44	74 8	331·2	1·50	1	8·0	12·0	·461	L.
Σ 178 ...	1 47	79 38	195·5	3·13	2	7·8	7·8	·526	H.F.
β 260 ...	1 48	75 0	234·5	0·83	1	8·3	9·0	·006	L.
			244·0	0·81	1	...		·994	H.F.
Σ 180 ...	1 49	71 9	0·1	8·21	1	4·2	4·4	·044	L.
			358·6	8·31	3	...		·367	W.B.
Lewis 1 ...	1 50	71 16	53·9	7·09	1	9·5	10·5	·044	L.
Σ 183 AB	1 50	61 38	352 0	0·39	2	7·5	8·2	·078	W.B.
Σ 183 AC	...		161·6	5·58	2	7·5	8·8	·078	W.B.
H 1096 ...	1 50	76 15	175·5	7·54	1	9·0	11·0	·006	L.
Σ 186 ...	1 51	88 36	30·5	1·03	1	7·2	7·2	·006	L.
Ait. 819 ...	1 52	59 25	137·0	0·39	2	7·8	7·3	·078	W.B.
Σ 194 ...	1 54	65 36	270·8	1·11	2	8·0	8·3	·526	H.F.
			271·8	1·27	2	...		·854	S.E.
			272·8	1·12	2	...		·880	W.B.
Σ 202 ...	1 57	87 40	311·6	2·18	1	2·8	3·9	·991	W.B.
OΣ 38 ...	1 58	48 6	116·9	0·37	3	5·0	6·2	·068	B.
			114·7	0·37	2	...		·073	W.B.
Σ 205 ...	1 58	48 6	63·4	9·96	2	3·0	4·7	·073	W.B.
Σ 208 ...	1 59	64 30	101·6	0·26	2	6·2	8·4	·078	W.B.
Σ 227 ...	2 7	60 6	76·4	3·65	2	5·0	6·4	·133	W.B.
Ho. 497 ...	2 7	53 3	64·8	0·62	1	8·2	9·0	·178	L.
Σ 228 ...	2 8	42 56	107·0	0·59	2	6·7	7·6	·049	B.
β 8 ...	2 17	81 32	204·6	1·22	1	8·3	9·2	·994	H.F.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.	Epoch. 1910	Obs.
	h m	° ′	°	″				
Hu. 603 ..	2 24	67 31	226·6	4·72	1	8·5 11·8	·044	L.
OΣ 42 ...	2 27	38 5	135·9	0·19	2	7·0 7·5	·088	B.
Σ 285 ...	2 33	56 58	170·3	1·70	3	7·0 7·7	·346	W.B.
Hu. 1043 ...	2 34	74 57	60·0	2·64	2	9·0 9·5	·880	W.B.
{B 1315= Hu. 1044}	2 34	75 53	129·5	1·58	1	8·1 9·7	·025	L.
			126·6	1·39	2	...	·880	W.B.
			126·9	1·61	1	...	·994	H.F.
Σ 289 ...	2 35	63 19	1·0	29·07	1	5·8 8·7	·186	L.
			359·3	28·91	1	...	·972	W.B.
* ...	2 36	63 24	49·8	6·81	1	8·0 9·0	·186	L.
OΣ 43 ...	2 35	63 46	45·4	1·08	2	7·2 8·8	·880	W.B.
			41·4	1·11	1	...	·906	L.
Σ 287 ...	2 35	75 31	69·3	6·84	1	7·5 9·8	·025	L.
Σ 299 ...	2 39	87 8	288·4	2·83	1	3·0 6·8	·994	H.F.
Σ 300 ...	2 39	60 55	306·3	2·99	2	7·9 8·1	·132	W.B.
			308·0	3·16	2	...	·845	S.E.
Σ 305 ...	2 42	71 0	314·9	3·04	2	7·3 8·2	·132	W.B.
Σ 311 ...	2 44	72 54	117·0	3·12	2	4·9 8·4	·511	W.B.
Ho. 218 ...	2 47	87 18	96·6	0·19	1	7·0 7·0	·068	B.
β 524 ...	2 48	52 1	312·5	0·27	3	6·0 6·7	·068	B.
β 1173 ...	2 53	66 14	344·1	0·19	3	7·7 7·8	·110	W.B.
			340·4	0·45	1	...	·994	H.F.
β 525 ...	2 54	68 45	153·2	0·29	4	7·0 7·0	·125	W.B.
Σ 333 ...	2 54	69 1	201·0	1·31	2	5·7 6·0	·073	W.B.
			198·2	1·46	1	...	·906	L.
			200·1	1·55	1	...	·994	H.F.
OΣ 49 ...	2 55	72 21	61·9	1·64	2	7·0 10·0	·880	W.B.
			60·9	1·77	1	...	·906	L.
Σ 346 ...	3 0	65 6	97·1	0·31	3	6·0 6·0	·070	W.B.
			89·1	0·38	1	...	·186	L.
$\frac{AB_C}{2}$	...		353·0	5·02	1	6·0 10·8	·066	W.B.
	...		355·3	5·40	2	...	·106	L.
* ...	3 1	65 5	136·9	2·06	1	10·0 10·0	·025	L.
* ...	3 1	65 6	40·9	1·48	1	7·5 8·0	·186	L.
Σ 355 ...	3 3	81 57	146·1	2·75	1	8·7 9·5	·994	H.F.
β 1030 ...	3 5	68 36	148·5	0·45	3	8·4 8·4	·110	W.B.
			151·1	0·60	1	...	·906	L.
Glasenapp 1	3 6	75 13	265·8	4·57	1	9·3 9·4	·994	H.F.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Σ 360 ...	3 6	53 7	134·5	2·20	2	7·8	8·0	·845	S.E.
Σ 367 ...	3 9	89 35	200·1	0·82	1	8·0	8·0	·994	H.F.
Σ 381 ...	3 18	69 20	92·6	0·82	1	7·0	8·7	·057	H.F.
			97·4	0·92	2	...		·950	W.B.
Hu. 1061 ...	3 28	74 46	52·3	3·27	1	8·2	12·3	·025	L.
Σ 412 ...	3 29	65 50	146·2	0·23	3	6·6	6·7	·070	W.B.
Σ 413 ...	3 30	56 37	310·0	2·62	2	8·5	8·5	·845	S.E.
β 533 ...	3 30	58 37	43·8	0·50	4	7·0	7·0	·125	W.B.
Σ 425 ...	3 34	56 10	269·5	2·41	2	7·3	7·3	·133	W.B.
Hu. 1065 ...	3 35	75 14	347·1	3·25	1	9·2	12·0	·025	L.
Barnard 3...	3 39	66 11	143·2	1·85	1	9·6	9·8	·025	L.
			143·7	1·18	1	...		·928	W.B.
Σ 442 ...	3 40	67 33	268·4	2·74	1	9·0	9·5	·025	L.
			268·6	2·11	3	...		·951	W.B.
OΣ 64 AB...	3 45	66 24	230·3	3·52	1	7·0	9·9	·906	L.
AC...	...		232·0	9·77	1	7·0	9·0	·906	L.
Σ 450 ...	3 42	66 21	264·4	5·87	2	8·5	11·0	·950	W.B.
Hu. 1067 ...	3 44	51 17	72·8	1·26	2	8·8	9·1	·854	S.E.
OΣ 65 ...	3 45	64 41	201·2	0·45	3	6·5	6·8	·070	W.B.
Σ 479 ...	3 56	67 3	127·4	7·19	2	7·0	7·9	·108	W.B.
Σ 3114 ...	4 3	50 4	171·4	2·41	2	8·0	10·5	·845	S.E.
Σ 499 ...	4 5	66 7	284·8	1·36	2	9·2	9·3	·950	W.B.
OΣ 80 ...	4 17	47 47	180·3	0·44	2	6·5	7·0	·126	B.
Hu. 304 ...	4 19	80 45	32·0	0·23	2	5·9	5·9	·089	W.B.
Ait. 1005 ...	4 20	58 3	117·7	0·81	1	8·3	10·5	·044	L.
β 1186 ...	4 23	79 0	172·6	0·81	1	6·8	9·7	·167	W.B.
Hu. 1080 ...	4 24	74 3	260·7	0·40	3	6·5	7·5	·131	W.B.
Aldebaran AB	4 31	73 40	109·0	32·29	1	1	13·5	·025	L.
Σ 567 ...	4 31	70 41	321·9	1·93	4	8·5	9·0	·360	W.B.
OΣ 86 ...	4 31	70 25	58·8	0·38	3	7·5	7·5	·070	W.B.
Hu. 305 ...	4 32	69 8	281·2	2·09	2	9·0	10·2	·169	W.B.
Σ 572 ...	4 33	63 14	199·4	3·72	2	6·5	6·5	·103	W.B.
			207·2	3·53	1	...		·186	L.
Σ 577 ...	4 36	52 39	64·3	1·54	2	7·7	7·7	·169	W.B.
			64·7	1·56	2	...		·846	S.E.
Ho. 333 ...	4 38	69 55	156·3	2·60	2	9·0	9·3	·169	W.B.
β 883 AB ...	4 46	79 5	337·1	0·33	1	7·0	7·0	·055	W.B.
			343·3	0·22	2	...		·078	B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Σ 622 ...	4 53	88 28	170·3	2·11	3	8·2	8·2	·951	W.B.
OΣ 92 ...	4 54	50 44	254·6	3·19	2	6·0	9·7	·169	W.B.
			260·2	3·37	2	...		·845	S.E.
De. 6 ...	4 56	75 37	92·1	1·01	2	8·8	9·2	·950	W.B.
OΣ 95 ...	5 0	70 19	320·4	0·76	3	6·6	7·2	·078	W.B.
Σ 644 ...	5 4	52 48	217·7	1·60	2	6·7	7·0	·169	W.B.
β 885 ...	5 6	91 53	192·3	0·57	2	8·3	8·4	·078	B.
Hu. 33 ...	5 7	89 36	301·1	0·20	2	7·5	8·0	·078	B.
OΣ 517 ...	5 9	88 9	296·8	0·24	2	6·5	6·7	·078	B.
Σ 678 ...	5 13	85 25	98·3	3·15	3	8·3	8·8	·951	W.B.
β 190 ...	5 16	98 7	354·8	0·44	1	7·9	8·7	·088	B.
Σ 706 ...	5 21	59 43	39·2	3·43	2	8·2	9·3	·169	W.B.
			41·9	3·71	1	...		·835	S.E.
Ait. 848 ...	5 21	90 37	43·2	0·26	1	7·5	8·1	·088	B.
Ho. 226 ...	5 21	62 28	58·0	0·68	4	7·0	7·0	·313	W.B.
Σ 712 ...	5 22	87 8	55·5	3·09	3	7·0	9 0	·951	W.B.
Σ 716 ...	5 24	64 55	202·1	4·86	3	5·8	6·6	·129	W.B.
Σ 719 ...	5 24	60 31	330·9	1·06	2	7·0	9·5	·214	W.B.
Ait. 1035 ...	5 24	58 38	118·9	1·35	1	8·5	10·5	·200	L.
Σ 726 ...	5 26	79 48	259·8	1·01	2	8·0	8·5	·127	W.B.
Σ 728 ...	5 26	84 7	133·5	0·16	1	5·2	6·7	·164	B.
Σ 731 ...	5 27	92 9	327·8	4·87	2	8·5	9·0	·118	W.B.
Σ 734 AB ...	5 29	91 47	355·5	1·57	4	7·0	8·6	·333	W.B.
{β 1049 / Σ 734 CD}	5 29	91 47	299·3	0·57	1	8·7	9·7	·167	W.B.
Hu. 1108 ...	5 29	50 23	147·4	1·42	1	9·5	9·7	·835	S.E.
β 1267 ...	5 29	59 8	217·8	0·76	1	8·5	8·5	·200	L.
			210·6	0·64	2	...		·214	W.B.
Σ 736 ...	5 31	48 14	172·2	2·28	2	7·2	8·5	·214	W.B.
Σ 742 ...	5 31	68 4	260·8	3·53	2	7·2	7·8	·214	W.B.
Σ 749 ...	5 32	63 8	344·5	0·84	2	7·1	7·2	·078	W.B.
β 1240 ...	5 33	59 34	320·8	0·21	4	5·6	6·0	·132	W.B.
Σ 753 AB/2 C			316·1	0·16	1	5·8	8·0	·197	L.
			268·1	12·41	2	...		·187	W.B.
β 1032 ...	5 34	92 39	326·1	0·20	1	4·0	6·0	·164	B.
OΣ 112 ...	5 34	52 6	66·4	0·52	2	7·3	8·0	·120	W.B.
Hu. 825 ...	5 34	54 3	336·0	0·29	4	8·0	8·2	·189	W.B.
β 1007 ...	5 36	73 31	271·3	0·20	3	6·0	6·2	·139	B.
Σ 770 ...	5 36	70 50	334·2	1·25	2	8·5	10·2	·950	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.	Epoch. 1910	Obs.
	h m	° ′	°	″				
Ait. 1040 ...	5 39	58 44	131·8	0·72	3	8·2 9·3	·161	W.B.
Hu. 38 ...	5 40	67 8	141·1	0·43	3	8·6 8·8	·167	W.B.
Σ 786 ...	5 41	69 47	337·2	6·98	1	7·7 10·7	·050	S.E.
Σ 787 ...	5 41	68 43	75·5	1·17	1	8·1 8·5	·050	S.E.
Σ 795 ...	5 43	83 34	205·2	1·23	2	6·2 6·2	·095	W.B.
OΣ 118 ...	5 43	69 9	313·2	0·56	2	6·2 7·7	·106	W.B.
Σ 802 ...	5 46	49 52	107·9	3·17	1	7·9 8·5	·050	S.E.
			105·6	2·84	2	...	·214	W.B.
Σ 799 ...	5 46	51 27	177·4	0·93	3	7·2 8·3	·222	W.B.
OΣ 123 ...	5 49	79 46	176·6	1·97	3	7·0 8·7	·104	W.B.
Σ 816 ...	5 50	84 9	287·9	4·09	1	6·2 8·7	·151	H.F.
Ho. 337 AB	5 50	66 44	114·2	9·46	2	9·0 9·2	·143	W.B.
BC	...		104·6	1·18	2	9·0 10·0	·143	W.B.
Σ 821 ...	5 53	60 23	3·6	1·98	3	8·0 9·8	·219	W.B.
Barnard4AB	5 57	67 43	191·5	1·88	2	9·0 9·3	·127	W.B.
AC	...		14·3	4·19	2	9·0 13·5	·127	W.B.
Σ 835 ...	6 0	71 41	144·1	1·93	1	8·0 9·0	·953	W.B.
OΣ 131 ...	6 1	53 43	285·5	1·35	2	7·0 10·2	·169	W.B.
OΣ 132 ...	6 2	52 0	316·8	1·68	4	6·8 10·0	·192	W.B.
Σ 851 ...	6 3	86 42	39·2	2·59	1	8·2 8·7	·050	S.E.
			28·2	2·62	1	...	·151	H.F.
Σ 849 ...	6 4	72 35	245·8	0·81	4	8·5 8·9	·123	W.B.
β 1058 ...	6 5	66 59	271·5	0·26	3	7·2 7·5	·139	B.
Lewis 7 ...	6 9	67 24	86·1	3·07	1	9·0 9·5	·186	L.
β 895 ...	6 14	61 32	169·4	0·16	3	7·5 7·5	·223	W.B.
Σ 888 ...	6 14	61 32	253·4	3·05	2	7·5 9·2	·169	W.B.
Hu. 452 ...	6 14	67 40	342·2	2·42	1	8·0 8·5	·186	L.
H 385 AB	6 14	67 52	48·2	1·58	1	8·7 9·4	·151	H.F.
			48·4	1·63	1	...	·186	L.
* ...	6 16	67 55	120·5	1·22	1	9·0 9·5	·186	L.
* ...	6 16	67 56	311·5	5·82	1	8·0 9·0	·200	L.
Hu. 702 ...	6 19	55 34	322·0	0·94	1	8·5 9·0	·186	L.
			324·8	0·87	2	...	·214	W.B.
OΣ 140 ...	6 21	74 26	118·4	3·35	1	7·0 9·5	·050	S.E.
			119·9	3·03	1	...	·151	H.F.
AG 112 ...	6 22	65 25	207·9	3·26	1	9·0 9·1	·151	H.F.
Σ 912 ...	6 24	53 20	25·4	3·37	2	8·2 10·2	·179	W.B.
			25·5	3·46	1	...	·186	L.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
β 1021 ...	6 26	61 33	88·9	0·64	3	8·1	9·4	·148	W.B.
OΣ 145 ...	6 27	74 14	338·2	1·61	2	7·0	9·8	·108	W.B.
OΣ 148 ...	6 29	52 52	73·1	2·58	1	7·1	10·8	·186	L.
Σ 928 ...	6 29	51 23	133·7	3·49	2	7·4	8·0	·169	W.B.
			129·3	2·97	1	...		·186	L.
Σ 932 ...	6 29	75 10	323·2	1·99	2	8·2	8·3	·114	W.B.
β 194 ...	6 30	51 56	281·9	0·94	2	8·0	8·5	·170	W.B.
			283·3	1·12	1	...		·186	L.
AG 116 ...	6 31	51 42	24·2	2·34	2	8·8	9·1	·169	W.B.
OΣ 149 ...	6 31	62 38	271·7	0·64	4	6·5	9·0	·177	W.B.
Σ 941 ...	6 32	48 20	81·4	1·84	2	7·0	8·0	·170	W.B.
Σ 945 ...	6 34	48 56	272·3	0·66	3	7·1	8·0	·180	W.B.
HΣ ...	6 34	80 16	277·0	0·60	3	7·8	7·8	·171	W.B.
Σ 949 ...	6 36	84 13	288·5	3·31	2	8·5	9·0	·152	W.B.
Σ 3117 ...	6 36	80 11	90·5	0·72	3	8·9	9·4	·171	W.B.
Σ 3118 ...	6 37	80 6	172·4	2·49	3	9·0	9·5	·171	W.B.
Σ 957 ...	6 39	59 5	94·6	3·43	2	7·5	9·0	·151	W.B.
OΣ 156 ...	6 42	71 43	293·9	0·46	3	6·5	7·0	·132	W.B.
AG 122 ...	6 44	81 11	26·8	0·37	3	10·0	10·5	·191	W.B.
Ait. 512 ...	6 47	64 51	136·7	0·34	2	9·0	9·3	·171	W.B.
OΣ 160 ...	6 49	68 43	170·7	1·47	3	6·8	9·8	·129	W.B.
Σ 981 ...	6 50	59 43	143·5	2·70	2	8·0	8·0	·619	W.B.
Σ 991 ...	6 52	64 55	166·7	3·65	2	8·0	9·0	·156	W.B.
AG 126 ...	6 52	50 28	76·1	3·89	2	9·0	9·2	·196	W.B.
β 1022 ...	6 55	62 36	310·8	0·36	1	8·5	8·5	·145	B.
Ho. 342 ...	6 58	76 46	80·0	1·06	3	8·0	8·8	·126	W.B.
Σ 1013 ...	7 0	53 49	39·0	4·26	2	8·2	9·5	·225	W.B.
Σ 1014 ...	7 0	63 44	218·3	1·75	2	8·7	8·7	·133	W.B.
Hu. 454 ...	7 0	68 11	211·3	1·95	2	9·1	11·3	·200	W.B.
AG 135 ...	7 0	51 37	27·5	3·67	2	9·4	9·8	·225	W.B.
Σ 1037 ...	7 7	62 37	296·8	0·54	3	7·1	7·1	·201	W.B.
OΣ 520 ...	7 8	61 21	359·2	0·60	1	7·0	9·0	·257	W.B.
β 1023 ...	7 10	63 58	299·4	0·28	1	8·4	8·5	·257	W.B.
OΣ 170 ...	7 13	80 32	107·6	1·49	2	7·5	7·5	·252	W.B.
Σ 1066 ...	7 15	67 51	208·5	6·72	1	3·2	8·2	·249	H.F.
Σ 1068 ...	7 15	76 27	346·2	3·75	1	8·3	9·0	·246	W.B.
β ...	7 18	52 3	244·1	2·17	1	9·5	9·5	·285	W.B.
Σ 1081 ...	7 19	68 22	227·2	1·63	2	7·8	8·5	·133	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Ku. 29 ..	7 19	50 1	143·0	3·26	1	9·5	10·0	·285	W.B.
Σ 1089 ...	7 21	74 58	188·2	7·07	1	8·5	8·5	·246	W.B.
AG 141 ...	7 23	53 4	32·8	4·23	2	9·2	9·4	·225	W.B.
β 21 ..	7 23	82 52	26·3	4·28	1	5·5	11·3	·249	H.F.
Σ 1110 ..	7 29	57 55	220·1	5·57	2	2·7	3·7	·166	W.B.
			220·6	5·67	1	...		·197	L.
Σ 1114 ...	7 29	80 31	256·3	6·72	1	8·5	9·0	·249	H.F.
OΣ 175 ...	7 29	58 51	332·2	1·02	1	6·0	6·6	·050	S.E.
			326·6	0·63	3	...		·139	B.
			328·9	0·78	1	...		·200	L.
OΣ 176 ...	7 34	89 17	208·8	1·20	1	7·3	9·3	·249	H.F.
Ho. 245 ...	7 34	91 15	184·3	0·43	2	8·	8·	·126	B.
Σ 1126 ...	7 35	84 34	144·4	1·08	2	7·2	7·5	·203	W.B.
AG 142 ..	7 36	66 36	19·4	1·64	3	8·8	10·0	·174	W.B.
OΣ 177 ..	7 36	52 22	122·5	0·42	3	7·5	8·5	·223	W.B.
AG 143 ..	7 37	88 39	99·6	5·37	1	8·7	9·7	·249	H.F.
Σ 1130 ...	7 37	80 5	161·6	1·48	1	8·4	8·9	·249	H.F.
Ho. 247 ..	7 41	68 39	129·0	0·36	3	7·5	8·0	·139	B.
Ho. 37 ...	7 44	92 2	173·6	1·29	1	8·	8·	·250	H.F.
Σ 1147 ...	7 45	65 14	345·2	2·24	2	9·0	9·0	·127	W.B.
OΣ 182 ...	7 48	86 22	33·7	0·93	1	7·0	7·5	·246	W.B.
AG 145 ...	7 48	80 39	245·4	5·07	1	9·2	9·6	·246	W.B.
OΣ 185 ...	7 53	88 38	30·2	0·38	3	6·8	7·0	·139	B.
Σ 1175 ...	7 58	85 36	231·0	1·79	1	7·8	9·7	·246	W.B.
OΣ 186 ...	7 58	63 29	72·0	0·77	1	7·5	8·2	·249	H.F.
OΣ 187 ...	7 58	56 43	262·9	0·28	1	6·9	7·5	·232	B.
β 581 AB ...	7 59	77 27	70 1	0·27	2	8·0	8·0	·155	B.
Σ 1177 ...	8 0	62 13	354·3	3·48	1	6·5	7·4	249	H.F.
Σ 1181 ...	8 0	81 33	140·0	5·24	1	8·0	9·5	·246	W.B.
Σ 1182 ...	8 1	83 55	73·1	4·45	1	7·0	9·0	·246	W.B.
Σ 1185 ...	8 2	88 23	99·1	3·79	1	8·8	9·7	·246	W.B.
AG 149 ...	8 2	82 21	56·8	5·72	1	9·6	9·6	·246	W.B.
Hu. 849 ...	8 3	52 31	286·7	1·06	1	8·8	9·0	·257	W.B.
Hu 850 ...	8 3	52 10	353·5	0 62	1	8·7	9·1	·257	W.B.
Σ 1186 ...	8 3	62 15	217·3	3·34	2	7·1	10·4	·130	W.B.
Σ 1187 ...	8 4	57 31	41·9	2·25	2	7·1	8·0	·130	W.B.
AG 150 ...	8 5	85 41	207·8	4·96	1	9·0	9·5	·246	W.B.
Σ 1194 ...	8 6	87 49	316·6	3·36	1	8·7	10·4	·246	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910. h m	N.P.D. 1910. ° ′	Position Angle. °	Distance. ″	No. of Nights.	Mags.		Epoch. 1910	Obs.
Σ 1196 AB...	8 7	72 4	325·8	0·86	2	5·0	5·7	·178	W.B.
AC...	...		110·6	5·20	2	5·0	5·5	·178	W.B.
BC...	...		117·4	6·05	2	5·7	5·5	·178	W.B.
Σ 1202 ...	8 9	78 52	318·5	2·32	2	7·7	9·8	·127	W.B.
β 204 ...	8 9	79 20	299·3	0·82	2	7·1	10·1	·200	W.B.
Hu. 1123 ...	8 9	53 14	157·4	0·36	1	8·5	8·8	·257	W.B.
β 1244 ...	8 9	87 44	38·0	0·74	1	7·9	8·1	·249	H.F.
WB	8 11	57 28	214·0	4·49	2	8·8	9·2	·185	W.B.
Hu. 625 ...	8 12	56 53	352·5	1·68	2	8·8	11·2	·184	W.B.
Σ 1211 ...	8 12	50 43	125·0	0·80	3	8·7	9·2	·223	W.B.
Σ 1212 ...	8 12	58 53	236·8	5·23	2	8·2	9·7	·130	W.B.
β 1320 ...	8 15	72 43	359·9	4·48	1	9·5	9·8	·123	W.B.
Hu. 855 ...	8 17	76 34	219·2	0·78	1	9·2	10·8	·244	W.B.
Hu. 856 ...	8 20	52 19	272·8	0·32	1	7·5	8·2	·257	W.B.
Σ 1223 ...	8 21	62 46	216·2	4·98	3	6·0	6·5	·209	W.B.
Σ 1224 ...	8 21	65 10	43·4	6·03	2	6·0	7·1	·210	W.B.
AG 153 ...	8 30	55 25	93·0	2·67	3	9·0	9·1	·229	W.B.
AG 154 ...	8 32	66 26	5·4	1·59	2	9·1	9·3	·118	W.B.
Küstner 32	8 36	70 24	170·1	2·01	2	8·4	10·2	·118	W.B.
β 209 ...	8 37	50 52	177·5	1·38	2	8·4	8·7	·229	W.B.
Σ 1265 ...	8 39	76 3	310·3	5·83	2	8·4	10·8	·127	W.B.
Σ 1273 AB...	8 42	83 14	199·5	0·21	2	4·0	5·5	·241	B.
AC...	...		239·1	3·36	1	3·8	7·8	·162	W.B.
β 335 ...	8 44	87 3	272·8	2·57	1	7·2	10·5	·249	H.F.
Σ 1279 ...	8 44	50 5	270·2	1·27	2	8·3	8·3	·229	W.B.
AG 157 ...	8 45	66 32	74·2	1·94	2	9·3	9·5	·118	W.B.
Bowyer 2 ...	8 46	81 24	44·8	2·92	2	8·5	9·5	·122	W.B.
Ho. 40 ...	8 46	58 16	288·0	0·55	1	9·0	9·3	·257	W.B.
Σ 1287 ...	8 46	77 32	92·6	1·79	2	8·0	10·3	·122	W.B.
Σ 1291 ...	8 49	59 5	322·6	1·31	3	5·9	6·4	·134	W.B.
Hu. 861 ...	8 53	75 27	23·0	0·31	1	8·5	9·1	·244	W.B.
Σ 1300 ...	8 56	74 22	196·5	4·87	2	8·7	8·8	·245	W.B.
AG 160 ...	8 59	50 5	238·5	3·72	1	9·0	9·1	·257	W.B.
AG 161 ...	9 0	57 12	221·8	4·04	2	9·0	9·2	·184	W.B.
OΣ 197 ...	9 5	86 41	61·8	1·53	1	7·4	9·0	·249	H.F.
β 455 ...	9 10	85 24	75·2	1·82	1	9·5	10·5	·249	H.F.
Σ 1339 ...	9 15	52 53	71·6	1·12	2	8·5	9·5	·229	W.B.
AG 165 ...	9 18	67 27	12·7	1·08	2	9·1	9·3	·200	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
OΣ 201 ...	9 19	61 43	220·7	1·22	4	7·5	9·0	·160	W.B.
β 1070 ...	9 20	63 21	83·7	0·49	1	9·1	10·2	·249	H.F.
Σ 1348 ...	9 20	83 16	142·4	1·76	2	7·5	7·6	·178	W.B.
AG 166 ...	9 22	88 32	70·0	3·85	1	9·0	11·0	·249	H.F.
Σ 1355 ...	9 23	83 22	336·0	2·33	2	7·2	7·2	·178	W.B.
Σ 1356 ...	9 24	80 33	122·1	1·03	1	6·2	7·0	·244	W.B.
β 591 ...	9 25	92 44	32·3	0·61	1	7·7	8·5	·249	H.F.
Σ 1372 ...	9 32	73 22	60·8	0·52	2	8·2	8·3	·203	W.B.
Σ 1377 ...	9 39	86 57	143·8	3·76	1	7·9	11·1	·249	H.F.
Σ 1384 ...	9 45	73 14	183·1	12·09	1	9·0	9·7	·249	H.F.
OΣ 208 ...	9 46	35 30	307·7	0·36	2	5·0	5·6	·280	B.
Ho. 369 ...	9 46	53 5	136·0	0·25	3	7·7	7·8	·241	B.
Ait. 344 ...	9 47	60 18	32·0	0·44	2	8·6	9·2	·241	W.B.
AC 5 ...	9 48	97 40	72·3	0·50	3	5·5	5·8	·241	B.
Σ 1397 ...	9 52	64 31	112·8	0·89	1	8·5	10·3	·244	W.B.
Weisse 23 ...	10 2	83 12	310·7	3·61	1	9·5	9·6	·249	H.F.
Σ 1413 ...	10 7	73 13	277·1	2·02	2	8·9	8·9	·245	W.B.
Hu. 634 ..	10 11	56 24	165·5	1·75	2	8·4	9·1	·248	W.B.
Σ 1419 ...	10 12	29 26	224·3	4·29	2	8·4	9·1	·299	W.B.
Hu. 875 ...	10 13	52 2	70·3	0·80	2	7·0	9·8	·248	W.B.
Σ 1420 ...	10 13	50 26	323·6	2·04	1	8·2	9·9	·257	W.B.
Σ 1423 ...	10 14	68 59	56·2	1·32	3	8·6	9·3	·183	W.B.
OΣ 217 ...	10 22	72 19	149·7	0·57	2	7·3	7·8	·258	W.B.
Hu. 879 ...	10 23	52 50	226·8	0·36	3	4·0	6·5	·241	B.
Σ 1439 ...	10 25	68 44	110·0	1·65	3	8·0	8·5	·183	W.B.
OΣ 220 ...	10 25	79 23	67·8	1·00	1	7·1	9·0	·162	W.B.
Hu. 636 ...	10 27	56 42	201·2	1·75	1	9·0	10·5	·257	W.B.
Σ 1446 ...	10 29	74 19	248·3	5·36	3	8·5	9·3	·317	W.B.
Σ 1450 ...	10 30	80 53	155·8	2·04	1	6·0	8·7	·246	W.B.
Perrotin ...	10 35	70 17	352·3	0·66	1	7·5	9·7	·249	H.F.
Σ 1468 ...	10 40	68 49	332·6	4·09	2	8·7	8·7	·136	W.B.
Σ 1501 ...	10 57	58 42	184·3	1·81	2	9·0	9·3	·200	W.B.
OΣ 232 ...	11 10	51 56	239·8	0·48	1	7·0	7·8	·257	W.B.
Σ 1523 ...	11 13	57 57	123·4	2·78	2	4·0	4·9	·233	W.B.
Σ 1527 ...	11 14	75 14	17·7	3·26	2	6·9	8·1	·150	W.B.
Σ 1536 ...	11 19	78 58	52·0	2·26	1	3·9	7·1	·142	W.B.
Σ 1537 ...	11 20	68 53	356·3	2·36	2	7·6	9·6	·152	W.B.
Lewis 11 ...	11 25	59 4	2·1	0·98	1	7·0	11·0	·350	L.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Hu. 1134 ...	11 27	53 15	128·2	0·13	2	7·0	7·0	·280	B.
Σ 1555 AB	11 32	61 43	358·0	0·29	1	6·4	6·8	·350	L.
AC	...		147·2	21·23	1	6·4	11·0	·350	L.
Ait. 678 ...	11 35	64 12	163·7	1·36	1	7·6	11·3	·350	L.
Ho. 535 ...	11 58	67 44	143·6	2·57	1	8·0	12·0	·350	L.
Ait. 681 ...	11 59	64 24	130·3	0·55	1	8·9	9·3	·350	L.
Ait. 682 ...	12 0	65 23	332·8	0·58	1	7·5	9·0	·350	L.
Hu. 570 ...	12 9	68 12	105·4	2·72	1	8·8	13·0	·350	L.
AG 176 ...	12 12	59 26	178·1	2·68	3	9·0	9·2	·307	W.B.
Σ 1634 ...	12 16	66 35	148·0	5·09	2	8·1	9·9	·241	W.B.
Σ 1639 ...	12 20	63 55	339·9	0·57	1	6·7	7·9	·350	L.
			341·5	0·42	1	...		·449	W.B.
Σ 1643 ...	12 23	62 28	35·4	1·94	3	8·7	9·2	·345	W.B.
Σ 1647 ...	12 26	79 47	225·4	1·31	1	7·5	7·8	·320	W.B.
Σ 1663 ...	12 33	68 18	102·3	0·48	6	7·8	8·7	·376	W.B.
Hu. 892 ...	12 38	74 59	155·2	0·85	2	9·3	9·3	·351	W.B.
Hu. 893 ...	12 43	77 13	31·7	1·32	3	9·1	9·1	·366	W.B.
Σ 1687 ...	12 49	68 11	88·7	1·03	1	5·2	8·0	·449	W.B.
Σ 1699 ...	12 54	62 2	185·1	1·28	2	7·8	7·8	·330	W.B.
Σ 1700 ...	12 54	62 24	83·2	7·19	2	8·2	10·0	·340	W.B.
Barnard 6 ...	12 58	73 58	43·1	2·63	2	9·1	9·1	·340	W.B.
Σ 1709 ...	12 58	66 1	252·8	2·30	2	7·4	9·7	·337	W.B.
Σ 1711 ...	12 58	66 1	339·5	0·97	1	8·5	9·0	·449	W.B.
Σ 1714 ...	12 59	65 53	125·6	2·99	2	8·8	9·2	·337	W.B.
Ho. 257 ...	13 2	63 12	153·7	2·11	2	8·8	8·9	·456	L.
OΣ 260 ...	13 4	62 35	305·4	0·77	2	7·9	8·3	·456	L.
Σ 1728 ...	13 6	72 0	7·3	0·33	1	6·0	6·0	·397	W.B.
OΣ 261 ...	13 8	57 27	345·1	1·65	4	6·9	7·4	·374	W.B.
β 800 ...	13 12	72 30	112·3	3·29	3	7·1	10·2	·347	W.B.
AG 186 ...	13 12	87 21	305·0	3·72	1	9·0	10·1	·350	H.F.
Σ 1734 ...	13 16	86 35	184·6	0·97	1	7·2	7·9	·350	H.F.
Ho. 260 ...	13 19	60 18	323·8	0·61	2	8·2	8·2	·405	W.B.
β 237 ...	13 22	75 9	203·6	2·64	2	8·3	10·3	·340	W.B.
AG 187 ...	13 23	69 4	298·9	1·38	2	9·5	9·5	·337	W.B.
OΣ 266 ...	13 24	73 49	343·1	1·64	2	7·3	7·8	·330	W.B.
OΣ 269 ...	13 29	54 38	50·5	0·26	2	6·5	7·0	·281	B.
Σ 1759 ...	13 30	62 5	152·4	10·13	2	8·5	10·2	·378	W.B.
Σ 1760 ...	13 30	63 16	64·2	8·72	2	8·0	8·0	·378	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
β 932 ...	13 30	102 45	87·6	0·32	1	6·1	6·6	·318	B.
Hu. 645 ...	13 35	68 5	14·9	0·63	1	9·5	9·5	·361	W.B.
β 612 ...	13 35	78 48	36·3	0·16	2	6·0	6·0	·280	B.
β 937 ...	13 53	55 8	113·6	0·74	1	8·1	8·3	·449	W.B.
OΣ 276 AB	14 5	52 50	202·0	0·45	1	7·5	8·3	·449	W.B.
AC	...		75·2	3·41	1	7·5	10·0	·449	W.B.
OΣ 277 AB	14 8	60 52	182·8	0·44	1	7·8	8·0	·449	W.B.
Σ 1812 AC	...		108·6	14·15	1	7·8	9·0	·449	W.B.
OΣ 278 ...	14 9	45 24	74·2	0·25	2	7·5	7·7	·280	B.
Σ 1819 ...	14 11	86 27	346·2	1·23	2	7·9	8·0	·380	W.B.
Σ 1824 ...	14 12	83 30	280·8	5·46	2	8·0	10·0	·378	W.B.
Howe 32 ...	14 12	66 13	192·5	4·43	3	9·1	9·5	·347	W.B.
Ho. 541 ...	14 16	77 25	93·7	2·11	3	9·3	10·2	·345	W.B.
Σ 3085 ...	14 16	66 4	231·0	4·88	1	8·3	11·0	·397	W.B.
Σ 1834 ...	14 17	41 5	98·5	0·22	2	7·1	7·2	·280	B.
Σ 1835 ...	...		189·8	6·45	1	5·5	6·8	·397	W.B.
Ait. 1105 ...	14 23	58 58	185·8	0·87	1	9·1	9·4	·449	W.B.
Σ 1853 ...	14 26	83 19	83·9	2·53	1	8·9	9·3	·361	W.B.
Σ 3086 ...	14 28	72 18	270·0	5·68	2	9·0	10·0	·368	W.B.
Ait. 570 ...	14 28	62 55	143·3	0·19	2	6·3	6·5	·356	B.
Σ 3087 ...	14 32	70 12	47·7	1·72	2	9·5	9·5	·333	W.B.
Σ 1863 ...	14 35	38 2	86·1	0·57	2	7·1	7·4	·289	B.
Howe 34 ...	14 36	77 31	14·3	2·34	3	8·7	9·2	·339	W.B.
Σ 1864 ...	14 37	73 12	102·1	6·25	2	4·9	6·0	·449	L.
Σ 1865 ...	14 37	75 53	138·2	0·58	2	3·5	3·9	·289	B.
			137·9	0·63	2	...		·449	L.
			138·2	0·60	2	...		·678	H.F.
Σ 1866 ...	14 37	80 6	202·6	0·83	1	8·2	8·2	·465	L.
OΣ 284 ...	14 37	40 55	100·3	7·28	1	7·2	11·2	·687	H.F.
Küstner 48	14 39	76 28	133·9	6·68	2	9·9	10·1	·378	W.B.
Σ 1877 ...	14 41	62 33	325·8	2·54	2	3·0	6·3	·679	H.F.
Σ 1879 ...	14 42	79 58	124·8	0·61	2	7·7	8·5	·431	B.
OΣ 285 ...	14 42	47 15	105·6	0·31	2	7·1	7·6	·356	B.
Σ 1883 ...	14 44	83 41	232·6	0·35	2	7·0	7·0	·433	B.
Σ 1888 ...	14 47	70 32	137·9	2·03	2	4·7	6·6	·379	W.B.
			142·3	2·18	2	...		·429	H.F.
β 31 AB ...	14 48	70 54	196·8	1·45	2	8·5	10·2	·349	W.B.
AC ...	...		159·5	9·14	1	8·5	12·5	·345	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
OΣ 287 ...	14 48	44 42	146·3	0·84	2	7·5	7·6	·679	H.F.
Ait. 2071 ...	14 48	71 38	276·4	0·82	2	8·6	9·2	·449	L.
OΣ 288 ...	14 49	73 55	188·0	1·49	2	6·4	7·1	·333	W.B.
			190·8	1·48	2	...		·429	H.F.
			188·7	1·67	1	...		·433	L.
Ait. 2072 ...	14 54	72 4	300·4	0·74	1	9·6	9·6	·433	L.
Hu. 745 ...	15 0	69 48	23·9	0·62	1	7·5	9·0	·419	H.F.
Σ 1907 ...	15 1	78 1	5·0	1·06	2	8·5	8·7	·349	W.B.
Σ 1908 ...	15 1	55 11	140·0	1·42	1	8·2	9·2	·449	W.B.
Σ 1909 ...	15 1	42 0	245·3	4·21	1	5·2	6·1	·687	H.F.
Σ 1910 ...	15 3	80 26	212·0	4·38	1	7·0	7·0	·438	H.F.
Σ 1911 ...	15 3	77 41	291·7	1·78	2	9·0	9·8	·349	W.B.
Σ 1912 ...	15 5	84 27	154·1	3·27	1	8·5	9·3	·438	H.F.
Ait. 690 ...	15 5	61 32	350·3	0·92	1	9·0	9·5	·449	W.B.
Ait. 1116 ...	15 7	79 32	20·4	0·39	2	8·1	8·1	·433	B.
Σ 1917 ...	15 8	74 17	236·0	2·19	2	9·0	9·3	·349	W.B.
Ho. 60 ...	15 10	54 47	37·0	0·69	1	7·5	7·6	·523	L.
Σ 1926 ...	15 12	51 22	260·0	0·93	1	6·1	8·4	·523	L.
			251·2	0·91	2	...		·679	H.F.
OΣ 295 ...	15 12	52 50	133·9	0·85	2	7·4	9·0	·679	H.F.
Σ 1932 ...	15 14	62 51	350·3	0·57	2	5·6	6·1	·433	B.
			349·7	0·57	1	...		·433	L.
Σ 1934 ...	15 14	45 53	203·8	7·24	1	8·5	8·5	·687	H.F.
Ho. 61 ...	15 15	54 34	258·1	1·96	1	8·2	13·0	·523	L.
Ho. 62 ...	15 17	54 42	285·8	0·95	2	8·3	8·4	·679	H.F.
Σ 1937 ...	15 19	59 24	215·4	1·06	1	5·5	6·0	·433	L.
			217·1	1·14	1	...		·449	W.B.
			220·0	1·03	1	...		·671	H.F.
Σ 1938 ...	15 21	52 20	64·1	1·11	1	6·7	7·3	·523	L.
Σ 1941 ...	15 22	63 3	225·8	1·44	4	8·7	8·7	·392	W.B.
OΣ 296 ...	15 23	45 40	302·5	1·62	2	7·0	8·6	·679	H.F.
Ait. 82 ...	15 23	65 46	323·8	0·89	1	8·5	9·3	·671	H.F.
Σ 1944 ...	15 23	83 35	322·0	0·98	1	7·5	8·1	·419	H.F.
Ait. 2073 ...	15 23	71 37	87·3	0·69	1	9·5	9·5	·433	L.
Küstner 50	15 24	43 31	333·2	6·13	2	9·5	9·9	·679	H.F.
Hu. 150 ...	15 25	69 3	25·2	4·25	2	9·0	9·4	·378	W.B.
			25·3	4·43	2	...		·429	H.F.
Σ 1950 ...	15 26	64 11	92·6	3·02	3	6·7	8·2	·402	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Hu. 1163 ...	15 27	51 32	260·9	0·40	1	8·2	8·5	·523	L.
			266·7	0·72	1	...		·671	H.F.
Hu. 577 ...	15 29	69 57	21·1	0·31	2	8·0	8·0	·433	B.
Σ 1957 ...	15 32	76 47	154·3	1·09	1	7·9	9·6	·345	W.B.
OΣ 298 ...	15 33	49 54	192·3	1·21	1	7·0	7·3	·671	H.F.
Ait. 1124 ...	15 34	34 11	129·9	1·07	1	8·6	9·3	·687	H.F.
Ait. 2076 ...	15 36	71 2	143·6	0·22	1	8·0	8·0	·433	L.
AG 197 ...	15 36	68 26	124·6	3·18	1	9·0	9·1	·345	W.B.
Hu. 580 ...	15 38	70 3	82·9	0·10	2	5·0	5·0	·433	B.
Σ 1967 ...	15 39	63 25	110·4	0·72	1	4·0	7·0	·433	L.
β 619 ...	15 39	76 3	5·9	0·57	2	6·9	7·7	·428	H.F.
OΣ 301 ...	15 43	47 16	33·4	3·85	1	7·0	10·6	·687	H.F.
β 621 ...	15 47	45 13	51·6	0·61	2	7·5	8·0	·707	H.F.
β 810 ...	15 48	47 16	90·6	1·08	1	8·5	11·2	·687	H.F.
Σ 1988 ...	15 53	77 15	261·1	2·29	1	7·5	8·2	·345	W.B.
			263·7	2·39	1	...		·419	H.F.
OΣ 303 ...	15 57	76 28	147·2	0·89	1	7·4	7·9	·438	H.F.
AG 200 ...	15 58	50 9	213·2	3·51	2	9·3	9·5	·707	H.F.
Σ 1998 ...	15 59	101 8	323·6	0·47	1	4·9	5·2	·499	B.
Σ 2000 ...	15 59	75 45	231·1	2·43	1	8·2	9·0	·438	H.F.
β 811 ...	16 2	67 35	217·4	3·61	1	7·9	10·4	·419	H.F.
β 949 ...	16 3	99 52	39·6	0·17	2	7·6	7·7	·500	B.
β 120 AB ...	16 6	109 14	10·6	0·85	2	4·2	6·7	·500	B.
Mitchell CD	...		47·5	2·01	2	7·0	8·0	·500	B.
Σ 2032 ...	16 11	55 55	216·9	4·96	1	5·0	6·1	·726	H.F.
Hu. 480 ...	16 12	70 3	252·8	1·53	1	9·0	10·2	·438	H.F.
Hu. 661 ...	16 15	40 29	54·5	0·56	1	9·0	9·2	·726	H.F.
Hu. 1172 ...	16 15	57 53	325·9	1·61	3	9·1	10·0	·695	H.F.
OΣ 309 ...	16 16	48 7	248·9	0·40	2	7·5	7·7	·356	B.
Hu. 481 ...	16 17	66 48	223·2	0·42	1	7·3	9·2	·411	W.B.
β 951 ...	16 20	56 26	51·7	0·91	2 4	8·2	8·7	·687	H.F.
Küstner 53	16 20	51 31	230·5	5·52	3 1	9·7	10·1	·726	H.F.
OΣ 310 ...	16 22	51 53	225·0	2·95	2	7·6	10·2	·737	H.F.
Ait. 226 ...	16 24	62 55	112·5	0·83	1	8·9	13·4	·786	H.F.
β 815 ...	16 24	46 53	335·8	10·47	1	8·1	10·4	·786	H.F.
Hu. 663 ...	16 26	38 13	235·6	2·65	1	7·0	11·8	·786	H.F.
Hu. 748 ...	16 26	38 24	81·8	11·48	1	6·2	12·8	·786	H.F.
Hu. 1173 ...	16 27	55 55	65·4	0·21	2	8·4	8·7	·433	B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°.	″					
Σ 3105 ...	16 27	96 50	30·5	0·37	1	7·7	7·7	·528	B.
Σ 2057 ...	16 27	70 31	267·2	4·98	1	9·0	9·2	·545	W.B.
Σ 2058 ...	16 28	70 30	348·0	1·72	2	9·0	9·5	·478	B.
β 816 ...	16 28	56 18	222·8	4·89	2	6·3	11·8	·737	H.F.
OΣ 313 ...	16 30	49 22	148·1	0·91	2	7·2	7·8	·356	B.
β 952 ...	16 32	52 55	146·1	3·69	3	8·0	10·3	·715	H.F.
Σ 2080 ...	16 35	51 30	23·2	2·70	1	8·0	11·8	·786	H.F.
Σ 2082 ...	16 36	40 54	91·0	24·99	1	4·0	10·7	·786	H.F.
Hu. 487 ...	16 38	67 59	23·5	0·43	1	9·0	9·0	·528	B.
Σ 2084 ...	16 38	58 15	141·6	1·26	3	3·0	6·5	·711	W.B.
Ait. 349 ...	16 38	59 41	112·4	0·68	1	9·2	10·0	·786	H.F.
Σ 2094 ...	16 40	66 19	77·5	1·33	2	7·3	7·6	·430	W.B.
Σ 2101 ...	16 43	54 12	53·5	4·05	1	6·3	9·0	·786	H.F.
Σ 2106 ...	16 47	80 26	286·6	0·21	1	6·7	8·4	·528	B.
Σ 2107 ...	16 48	61 11	11·5	0·34	1	6·5	8·0	·528	B.
β 821 ...	16 48	58 0	313·2	1·23	2	8·4	8·9	·737	H.F.
Ait. 350 ...	16 50	60 45	139·4	0·37	1	9·0	9·0	·528	B.
OΣ 319 ...	16 54	74 43	62·5	0·72	1	7·5	8·5	·411	W.B.
Σ 2118 ...	16 56	24 50	80·5	0·29	2	6·4	6·9	·356	B.
OΣ 322 ...	16 57	52 57	197·2	1·45	2	7·0	9·8	·665	W.B.
Σ 2114 ...	16 58	81 26	164·6	1·07	1	6·2	7·4	·411	W.B.
Σ 2120 ...	17 1	61 48	242·0	8·47	1	6·4	9·2	·608	L.
Perry ...	17 1	70 17	230·2	1·69	1	6·9	10·2	·411	W.B.
β 357 ...	17 1	79 20	298·5	1·06	1	8·3	10·0	·411	W.B.
Σ 2130 ...	17 3	35 24	138·4	2·06	1	5·0	5·1	·841	H.F.
β 1118 ...	17 5	105 36	244·9	0·37	2	3·4	3·9	·500	B.
Hu. 1176 ...	17 5	53 57	127·7	0·14	1	6·0	6·0	·528	B.
Σ 2135 ...	17 8	68 40	179·3	7·40	2	7·1	8·4	·523	S.E.
Hu. 1178 CD	17 9	50 38	77·8	1·09	1	9·0	13·5	·286	H.F.
AB	...		9·2	0·52	1	8·4	8·7	·286	H.F.
Σ 2140 ...	17 10	75 30	112·3	4·64	1	3·0	6·1	·665	W.B.
Hu. 488 ...	17 11	69 58	108·6	2·73	1	8·8	10·0	·411	W.B.
Hu. 489 ...	17 12	69 47	51·5	0·69	1	9·2	10·5	·411	W.B.
OΣ 328 ...	17 14	56 48	64·3	4·95	1	4·8	10·2	·465	L.
			56·9	4·40	1	...		·671	H.F.
β 45 ...	17 14	57 35	290·0	4·96	1	9·7	10·3	·465	L.
Σ 2153 ...	17 15	40 36	265·0	1·85	1	8·6	9·1	·821	H.F.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
β 629 ...	17 15	57 15	340·0	1·19	1	8·3	9·0	·465	L.
			337·3	1·08	1	...		·671	H.F.
Swift ...	17 16	36 16	141·8	0·70	1	8·9	9·0	·821	H.F.
*AB ...	17 17	36 13	153·1	3·86	1	8·0	10·5	·821	H.F.
BC ...	...		144·0	1·77	1	10·5	11·0	·821	H.F.
β 630 ...	17 16	57 34	227·8	1·61	1	8·7	10·7	·465	L.
β 1284 ...	17 19	75 1	180·4	1·28	1	8·3	11·3	·438	H.F.
Hu. 671 ...	17 20	68 0	273·5	0·62	1	8·4	9·0	·438	H.F.
β 46 ...	17 20	76 31	201·8	1·57	1	7·7	10·9	·411	W.B.
			201·0	2·13	1	...		·438	H.F.
Σ 2161 ...	17 21	52 47	312·3	3·87	2	4·6	5·5	·734	W.B.
			314·6	3·85	2	...		·778	H.F.
Hu. 1179 ...	17 21	51 21	283·7	0·24	1	7·0	7·1	·528	B.
Hu. 922 ...	17 22	55 12	0·3	0·62	1	9·0	9·8	·821	H.F.
β 1250 ...	17 21	59 10	67·8	1·97	1	10·3	10·8	·746	H.F.
Σ 2163 ...	17 21	47 46	88·3	1·36	2	9·2	9·2	·804	H.F.
Σ 2165 ...	17 23	60 28	255·4	8·20	1	7·0	8·5	·821	H.F.
Σ 2170 ...	17 24	79 27	71·2	3·79	1	8·5	9·0	·523	S.E.
Σ 2173 ...	17 26	91 0	255·8	0·23	2	6·0	6·3	·500	B.
Ait. 351 ...	17 26	60 32	66·0	0·66	1	9·5	9·9	·821	H.F.
Hu. 179 ...	17 27	78 43	50·6	2·26	1	8·8	8·9	·438	H.F.
* ...	17 32	50 55	53·3	2·24	1	9·5	10·0	·821	H.F.
β 1121 ...	17 33	77 25	234·7	0·70	1	8·5	9·0	·438	H.F.
β 962 ...	17 34	28 4	345·9	1·10	1	4·5	10·0	·821	H.F.
AG 210 ...	17 34	66 59	175·5	4·20	1	9·0	9·3	·438	H.F.
β 631 ...	17 35	90 36	60·2	0·31	2	7·0	7·0	·499	B.
AG 211 ...	17 37	69 40	126·0	2·74	1	9·0	9·5	·438	H.F.
Σ 2203 ...	17 38	48 18	319·3	0·58	3	7·5	7·8	·705	W.B.
Ho. 560 ...	17 40	56 1	95·8	0·62	2	7·9	7·9	·737	W.B.
Σ 2205 ...	17 42	72 15	306·9	2·22	1	8·3	8·7	·438	H.F.
Ait. 697 ...	17 44	47 43	92·6	0·64	1	8·4	8·5	·786	H.F.
β 358 ...	17 44	55 29	201·8	4·39	1	8·5	10·0	·438	H.F.
β 824 ...	17 44	91 51	358·6	0·51	2	8·5	8·6	·500	B.
Σ 2238 ...	17 47	52 14	287·0	2·29	1	9·2	9·7	·821	H.F.
Ait. 1163 ...	17 47	82 17	104·5	1·18	1	8·7	10·0	·438	H.F.
β 130 ...	17 56	49 58	121·1	1·63	3	6·0	9·7	·743	W.B.
AC 9 ...	17 51	60 10	236·0	0·92	3	8·3	8·8	·743	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
OΣ 339 ...	17 52	68 28	180·4	3·43	1	7·5	9·9	·465	L.
β 1299 ...	17 53	79 2	152·6	0·58	1	8·5	8·5	·438	H.F.
β 417 ...	17 53	50 33	283·3	1·57	1	8·1	10·0	·821	H.F.
Σ 2267 ...	17 59	49 49	244·7	0·95	3	8·0	8·0	·705	W.B.
β 1127 ...	18 0	45 46	129·3	0·88	1	7·8	9·7	·821	H.F.
Σ 2272 ...	18 1	87 27	151·2	3·38	9	4·5	6·0	·611	W.B.
OΣ 343 ...	18 3	41 52	75·7	2·77	2	7·2	10 2	·803	H.F.
Ho. 79 ...	18 3	56 35	16·3	0·68	1	9·0	9·0	·786	H.F.
Σ 2290 ...	18 4	40 0	354·8	3·70	1	8·5	10·8	·821	H.F.
Σ 2281 ...	18 5	86 2	299·4	0·30	2	5·7	7·2	·697	W.B.
OΣ 344 ...	18 5	40 18	150·8	1·95	2	6·7	10·8	·803	H.F.
Σ 2289 ...	18 6	73 33	226·9	1·28	2	6·0	7·1	·523	S.E.
Hu. 317 ...	18 7	72 48	21·0	2·09	2	8·5	8·8	·523	S.E.
Σ 2292 ...	18 9	62 23	270·2	1·07	3	8·0	8·1	·705	W.B.
AG 221 ...	18 16	68 42	192·3	1·19	2	9·0	9·4	·526	W.B.
* ...	18 17	68 48	137·5	2·12	1	10·5	11·0	·695	H.F.
* ...	18 18	68 48	31·2	2·82	1	10·0	11·0	·695	H.F.
AG 222 ...	18 18	75 49	141·4	1·43	2	8·6	8·8	·641	W.B.
β 641 ...	18 18	68 32	341·0	0·85	1	7·1	9·0	·695	L.
Ho. 84 ...	18 21	62 39	317·2	3·75	1	9·0	11·0	·695	L.
Σ 2315 ...	18 21	62 39	190·6	0·51	1	7·0	8·0	·695	L.
			183·7	0·28	2	...		·742	W.B.
β 134 ...	18 23	43 10	133·1	0·96	1	7·9	9·8	·728	W.B.
Σ 2323 ...	18 23	31 15	357·8	3·71	2	4·7	7·7	·523	S.E.
Lewis 23 ...	18 23	62 8	138·8	1·21	1	8·5	9·5	·695	L.
Hu. 245 ...	18 29	78 17	53·5	2·69	2	8·2	9·2	·657	L.
			53·4	2·07	2	...		·641	W.B.
Σ 2339 ...	18 30	72 21	270·9	2·18	2	7·2	8·0	·641	W.B.
OΣ 357 ...	18 32	78 21	234·6	0·31	3	7·5	7·6	·637	W.B.
			233·8	0·29	1	...		·695	L.
* ...	18 32	78 12	216·0	2·36	1	9·0	9·5	·695	L.
OΣ 358 ...	18 32	73 6	10·3	2·01	2	6·8	7·2	·523	S.E.
Hu. 247 ...	18 33	79 49	34·6	0·62	1	9·0	9·3	·619	L.
* ...	18 32	79 46	182·8	1·77	1	9·0	9·0	·619	L.
* ...	18 33	79 46	332·8	5·43	1	9·5	9·5	·619	L.
* ...	18 33	79 44	276·7	5·25	1	9·5	9·8	·619	L.
Lewis 25 *a* ...	18 34	61 17	260·9	1·30	1	8·8	9·5	·695	L.
Σ 2356 ...	18 34	61 23	58·7	0·90	1	8·0	9·0	·695	L.

Micrometric Measures of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Hu. 248 ...	18 35	80 57	111·3	2·26	1	9·5	9·6	·619	L.
* ...	18 35	79 46	62·8	2·73	1	10·0	10·2	·619	L.
* ...	18 36	79 46	73·8	4·05	1	10·5	10·5	·619	L.
Σ 2364 ...	18 36	65 22	178·0	8·18	2	8·0	10·2	·625	W.B.
Hu. 1190 ...	18 37	51 58	352·5	1·72	1	9·5	9·5	·821	H.F.
Σ 2392 AB	18 42	50 52	313·5	2·91	1	8·2	10·2	·821	H.F.
AC	...		175·2	23·83	1	8·2	9·3	·821	H.F.
OΣ 362 ...	18 44	79 27	35·2	1·86	1	7·8	11·9	·734	H.F.
Hu. 936 ...	18 45	56 5	102·7	1·91	1	8·8	9·1	·821	H.F.
β 265 ...	18 46	78 35	228·1	1·27	2	7·1	9·1	·761	W.B.
Σ 2415 ...	18 51	69 30	292·7	2·08	2	6·6	8·5	·523	S.E.
			291·7	1·78	2	...		·592	W.B.
β 137 ...	18 51	52 44	136·7	1·24	1	8·2	8·7	·805	W.B.
Σ 2422 ...	18 53	64 2	93·7	0·70	3	7·6	7·7	·723	W.B.
Ait. 260 ...	18 54	57 58	245·9	0·71	1	8·9	9·1	·805	W.B.
β 648 ...	18 54	57 13	175·4	0·39	1	6·0	9·5	·805	W.B.
Hu. 330 ...	18 55	70 32	31·1	1·03	1	9·0	9·3	·619	L.
* ...	18 55	70 56	67·7	8·67	1	10·0	10·5	·619	L.
* ...	18 56	70 31	113·7	2·75	1	9·5	10·0	·619	L.
Σ 2437 ...	18 58	70 58	55·9	0·73	3	7·8	8·0	·728	W.B.
Bird 4 ...	19 1	57 22	313·0	2·48	1	8·4	8·6	·786	H.F.
Σ 2454 ...	19 3	59 42	246·0	0·78	1	8·0	9·2	·786	H.F.
			251·4	0·81	1	...		·829	W.B.
Σ 2457 ...	19 4	67 33	199·5	10·55	1	7·2	8·7	·561	L.
* ...	...		6·96	3·74	1	9·0	9·0	·561	L.
Ait. 704 ...	19 5	43 16	282·2	1·13	2	9·0	9·3	·821	H.F.
Σ 2466 ...	19 5	60 20	107·0	2·48	2	...		·523	S.E.
			109·1	2·13	2	...		·829	W.B.
Σ 2481 ...	19 8	51 22	218·2	4·13	2	8·0	8·0	·829	W.B.
OΣ 371 ...	19 12	62 42	152·9	0·78	2	6·8	6·9	·520	W.B.
			152·7	0·74	1	...		·660	L.
Ho. 447 ...	19 13	62 14	174·8	2 03	1	9·5	9·5	·487	W.B.
Σ 2491 ...	19 13	61 53	214·4	1·05	3	7·9	9·2	·645	W.B.
Hu. 336 ...	19 13	71 17	196·1	1·34	2	8·9	9·2	·592	W.B.
β 248 ...	19 14	67 8	127·9	1·92	2	5·7	9·5	·615	S.E.
			126·5	1·59	2	...		·720	W.B.
Σ 2513 ...	19 21	87 44	320·1	1·80	1	8·2	8·8	·737	W.B.
Σ 3111 ...	19 21	68 21	116·1	2·24	2	9·0	9·4	·559	W.B.

Micrometric Measures of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
Espin 80 ...	19 21	57 2	189·1	3·71	1	8·6	9·0	·805	W.B.
Σ 2524 ...	19 23	64 42	274·7	6·31	3	8·3	8·5	·594	W.B.
Σ 2525 ...	19 23	62 52	303·5	0·66	3	7·5	7·9	·554	W.B.
			309·3	0·87	2	...		·615	S.E.
Σ 2520 ...	19 23	77 19	235·2	1·64	2	8·8	9·3	·520	W.B.
Σ 2527 ...	19 23	69 30	20·4	4·31	2	8·2	9·7	·608	S.E.
β 424 ...	19 24	54 7	36·2	2·71	1	8·7	10·1	·805	W.B.
Aitken 160	19 25	67 6	53·4	0·40	4	8·5	8·6	·655	W.B.
Σ 2536 ...	19 28	72 24	76·9	1·79	1	8·0	11·0	·619	L.
Lewis 29 ...	19 28	72 8	163·5	12·47	1	9·0	10·5	·619	L.
Σ 2540 ...	19 29	69 47	146·8	5·08	2	7·5	9·0	·663	W.B.
OΣ 375 ...	19 31	72 4	152·2	0·56	2	7·2	8·4	·592	W.B.
Ho. 110 ...	19 35	71 31	258·9	2·37	2	9·3	9·3	·559	W.B.
Σ 2556 ...	19 36	67 57	133·1	0·31	3	7·3	7·3	·726	W.B.
Howe 50 ...	19 38	85 16	194·7	2·40	1	9·5	9·8	·734	H.F.
Lewis 30 ...	19 39	63 17	348·0	3·57	2	9·0	9·5	·615	S.E.
β 657 ...	19 40	67 35	149·9	1.05	1	9·2	10·0	·734	H.F.
Σ 2569 ...	19 41	73 24	2·2	2·16	1	8·0	8·5	·734	H.F.
Σ 2576 ...	19 42	56 36	106·8	2·06	2	7·8	7·8	·691	W.B.
			283·5	2·43	1	...		·786	H.F.
AG 237 ...	19 42	59 25	144·4	2·26	1	8·6	9·2	·786	H.F.
Hu. 758 ...	19 44	56 53	144·8	1·03	1	9·0	9·0	·786	H.F.
Doo. 11 ...	19 44	65 27	280·3	2·50	1	9·0	10·0	·772	L.
Dawes 10 ...	19 44	66 0	298·8	0·53	1	8·0	9·0	·772	L.
OΣ 387 ...	19 45	54 56	323·2	0·46	3	7·2	8·2	·728	W.B.
Σ 2584 ...	19 47	68 2	292·8	1·80	1	8·5	8·5	·772	L.
Σ 2586 ...	19 47	65 16	225·0	3·82	1	7·3	10·2	·772	L.
Σ 2596 ...	19 50	74 56	323·8	1·83	3	7·2	8·6	·746	W.B.
*	19 48	67 31	273·8	0·85	1	7·5	10·0	·772	L.
*	19 49	67 29	321·2	1·06	1	9·0	9·5	·772	L.
Σ 2600 ...	19 52	67 50	56·0	2·97	1	8·3	9·7	·772	L.
*	19 50	67 56	260·2	2·83	1	10·5	11·0	·772	L.
*	19 50	67 56	258·7	9·52	1	10·0	10·5	·772	L.
β 425 ...	19 53	69 57	61·4	1·29	2	8·8	9·0	·581	W.B.
β 981 ...	19 54	69 42	115·1	3·10	1	8·0	11·4	·734	H.F.
Ait. 1194 ...	20 0	77 54	306·5	0·77	2	8·9	9·0	·592	W.B.
β 57 ...	20 1	74 46	116·8	2·07	1	6·2	10·6	·737	W.B.
β 428 ...	20 2	77 19	354·8	0·67	2	7·2	8·5	·592	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
OΣ 398 ...	20 4	54 33	83·0	0·97	3	7·3	9·8	·768	W.B.
Doo. 14 ...	20 8	64 23	263·7	1·73	1	9·2	10·0	·734	H.F.
Ait. 1202 ...	20 9	29 29	126·2	0·75	1	8·9	9·5	·737	W.B.
Σ 2653 ...	20 10	66 3	266·6	2·53	2	7·0	10·1	·751	W.B.
β 983 ...	20 11	64 41	152·2	0·91	3	6·1	10·2	·761	W.B.
β 984 ...	20 14	63 55	214·2	0·67	2	7·9	8·2	·773	W.B.
β 431 ...	20 17	54 1	214·6	0·51	2	8·5	8·8	·794	W.B.
Σ 2672 ...	20 18	66 31	299·3	0·84	2	8·7	8·8	·773	W.B.
β 1259 ...	20 18	59 41	168·9	0·49	1	8·3	8·7	·745	W.B.
β 62 ...	20 24	60 10	134·6	1·12	2	8·5	9·4	·775	W.B.
De. 22 ...	20 22	50 12	142·9	2·69	2	7·9	9·0	·720	W.B.
Σ 2695 ...	20 28	64 30	76·4	1·10	3	6·8	8·0	·597	W.B.
			81·1	1·09	2	...		·615	S.E.
Σ 2698 ...	20 30	62 6	300·7	4·35	2	8·1	9·0	·619	W.B.
AG 258 ...	20 32	79 52	9·3	3·96	2	9·2	9·4	·675	W.B.
β 151 ...	20 33	75 43	189·0	0·25	1	4·5	6·0	·643	B.
Ait. 744 ...	20 34	60 26	274·9	0·52	1	8·8	8·8	·745	W.B.
Ho. 458 ...	20 35	61 10	279·9	2·34	1	9·0	9·1	·561	L.
* ...	20 35	61 10	90·5	2·77	1	10·0	10·0	·561	L.
Ho. 136 ...	20 36	61 13	365·4	2·70	1	8·0	11·5	·561	L.
AG 264 ...	20 42	65 38	176·1	1·91	3	9·0	9·1	·597	W.B.
β 364 ...	20 43	64 55	227·0	1·27	2	8·7	8·9	·591	W.B.
			228·2	1·52	2	...		·608	S.E.
β 66 ...	20 44	62 52	159·7	1·25	2	8·6	9·1	·591	W.B.
OΣ 417 ...	20 49	61 11	27·5	0·55	2	7·5	8·1	·773	W.B.
OΣ 418 ...	20 51	57 38	290·7	1·12	2	7·3	7·4	·773	W.B.
Hu. 363 ...	20 55	71 58	100·6	0·65	1	9·3	9·3	·737	W.B.
Σ 2737 ...	20 55	86 3	278·0	0·28	1	5·7	6·2	·643	B.
β 69 ...	20 59	68 40	314·5	0·90	2	8·2	9·0	·699	W.B.
Ait. 178 ...	21 2	69 4	77·6	0·82	1	8·1	9·3	·745	W.B.
OΣ 430 ...	21 8	66 13	199·6	1·16	1	7·8	9·8	·805	W.B.
Ho. 152 ...	21 9	62 2	332·4	0·43	3	8·2	8·3	·783	W.B.
OΣ 535 ...	21 10	80 22	12·0	0·23	1	4·5	5·0	·643	B.
			19·3	0·22	1	...		·772	L.
			16·9	0·23	3	...		·777	W.B.
β 162 ...	21 14	54 37	245·0	1·07	2	8·0	8·5	·841	W.B.
Ho. 153 ...	21 14	56 38	121·7	0·80	1	8·0	9·0	·805	W.B.
Ait. 295 ...	21 17	62 39	232·9	0·37	3	8·5	8·7	·783	W.B.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910.	N.P.D. 1910.	Position Angle.	Distance.	No. of Nights.	Mags.		Epoch. 1910	Obs.
	h m	° ′	°	″					
OΣ 437 ...	21 17	57 55	39·9	1·74	3	6·5	7·2	·833	W.B.
Σ 2799 ...	21 24	79 18	291·6	1·38	2	6·6	6·6	·619	W.B.
Σ 2791 ...	21 19	86 1	102·5	2·39	2	8·5	9·0	·699	W.B.
Holden 45	21 27	55 20	18·4	1·19	2	8·5	9·1	·841	W.B.
Hu. 371 ...	21 31	65 57	168·3	0·17	1	7·0	7·5	·643	B.
Hu. 372 ...	21 34	66 48	139·6	0·19	1	9·0	9·0	·737	W.B.
β 1212 ...	21 35	90 28	278·1	0·45	1	6·5	6·9	·643	B.
OΣ 448 ...	21 37	61 4	227·3	0·65	3	7·7	8·7	·755	W.B.
Ho. 164 ...	21 37	55 20	242·9	3·18	3	8·3	8·4	·871	W.B.
Ho. 165 ...	21 38	71 25	59·8	0·38	1	8·0	8·4	·630	W.B.
Σ 2822 ...	21 40	61 40	127·8	1·82	2	4·0	5·0	·829	W.B.
β 989 ...	21 41	64 46	273·0	0·13	1	4·3	5·0	·643	B.
			284·1	0·16	2	...		·741	W.B.
			289·1	0·20	2	...		·820	L.
Σ 2824 ...	21 41	64 46	297·2	12·59	1	4·3	10·0	·737	W.B.
K Pegasi	...		297·5	12·81	1	...		·868	W.B.
AG 276 ...	21 41	68 29	357·4	2·28	2	8·8	9·2	·615	S.E.
			356·6	1·79	3	...		·632	W.B.
AG 277 ...	21 42	69 14	236·9	2·54	2	9·0	9·0	·615	S.E.
			237·2	2·28	2	...		·864	W.B.
Ho. 171 ...	21 48	62 38	171·3	0·73	2	8·1	8·2	·715	W.B.
OΣ 452 ...	21 51	83 11	178·9	1·17	1	7·7	8·8	·630	W.B.
β 75 ...	21 51	79 33	52·1	1·09	1	8·1	8·5	·630	W.B.
AG 278 ...	21 52	57 24	158·0	3·15	2	9·5	9·5	·852	W.B.
β 696 ...	22 0	74 34	359·0	0·46	1	8·0	8·0	·643	B.
Ait. 308 ...	22 3	64 48	116·3	0·23	1	8·5	8·8	·643	B.
OΣ 462 ...	22 3	54 20	323·1	1·22	1	7·2	9·0	·805	W.B.
β 842 ...	22 5	84 45	122·6	0·92	1	8·8	9·1	·742	W.B.
Hu. 978 ...	22 8	76 32	222·6	0·69	1	8·5	9·0	·737	W.B.
Σ 2881 ...	22 10	60 52	98·3	1·67	2	7·7	8·2	·615	S.E.
			99·6	1·54	2	...		·826	W.B.
Hu. 383 ...	22 15	69 20	42·2	0·18	1	9·0	9·0	·737	W.B.
β 1216 ...	22 16	60 56	300·5	0·51	1	8·4	8·7	·643	B.
			304·2	0·64	2	...		·749	S.E.
Σ 2895 ...	22 17	65 30	37·0	8·23	1	8·5	10·0	·742	W.B.
Σ 2900 ...	22 19	69 36	171·1	0·95	2	6·0	9·2	·701	W.B.
			179·4	1·47	2	...		·739	S.E.
			180·3	1·53	2	...		·811	L.

Micrometric Observations of Double Stars—continued.

Star's Name.	R.A. 1910. h m	N.P.D. 1910. ° ′	Position Angle. °	Distance. ″	No. of Nights.	Mags.		Epoch. 1910	Obs.
β 172 ...	22 19	95 18	358·6	0·66	1	6·7	6·7	·643	B.
Hu. 493 ...	22 19	71 4	168·0	0·68	1	9·0	9·5	·849	L.
Hu. 385 ...	22 20	67 55	72·7	1·44	1	8·7	15·0	·772	L.
Hu. 596 ...	22 22	71 3	13·2	1·33	1	9·5	10·0	·772	L.
β 291 ...	22 23	85 56	182·2	0·36	1	8·4	8·4	·643	B.
β 701 ...	22 24	78 13	274·3	1·15	1	7·0	10·0	·772	L.
β 1218 ...	22 24	60 46	57·6	1·56	2	8·6	8·8	·686	S.E.
			54·8	1·27	2	...		·849	W.B.
Σ 2912 ...	22 25	86 2	118·0	0·35	1	5·8	7·2	·643	B.
Hu. 388 ...	22 26	60 0	142·0	0·19	1	8·0	8·5	·737	W.B.
Ho. 475 AB	22 29	64 3	317·9	0·80	2	8·5	8·7	·816	W.B.
AC	...		224·5	8·06	2	...		·816	W.B.
AB	...		329·1	0·92	1	...		·902	L.
AC	...		224·6	7·74	1	...		·902	L.
Ho. 186 ...	22 32	63 45	24·1	7·67	1	7·0	12·2	·906	L.
Σ 2925 ...	22 33	84 34	3·6	7·55	1	8·7	9·5	·742	W.B.
Ho. 480 ...	22 34	60 46	220·2	0·77	1	8·0	9·1	·800	W.B.
Hu. 392 ...	22 35	71 39	335·8	0·52	1	9·2	9·5	·772	L.
Ho. 296 ...	22 36	75 56	54·8	0·34	1	5·8	5·9	·643	B.
			55·6	0·31	1	...		·737	W.B.
Hu. 780 ...	22 37	75 56	7·2	0·28	1	9·2	9·2	·643	B.
Ho. 480 ...	22 37	85 45	220·2	0·77	1	9·0	9·8	·800	W.B.
Σ 2934 ...	22 38	69 3	130·8	0·70	2	8·2	9·2	·785	W.B.
Σ 2944 ...	22 43	94 42	261·1	3·18	1	7·0	7·5	·742	W.B.
Hu. 987 ...	22 51	74 42	250·2	0·63	1	8·6	8·8	·624	S.E.
			245·2	0·54	1	...		·849	L.
Σ 2957 ...	22 52	73 1	221·9	4·83	1	8·6	10·4	·849	L.
OΣ 536 ...	22 54	81 7	161·7	0·19	1	7·0	7·5	·737	W.B.
OΣ 483 ...	22 55	78 45	230·7	0·98	1	6·2	7·7	·737	W.B.
AG 289 ...	22 59	67 19	46·2	1·12	1	9·2	9·2	·898	W.B.
Hu. 995 ...	23 4	74 57	177·9	0·97	1	9·0	9·7	·832	W.B.
Ho. 197 ...	23 7	52 16	109·5	0·36	1	8·0	8·2	·800	W.B.
Σ 2989 ...	23 9	70 30	139·8	1·59	1	8·5	9·9	·832	W.B.
Hu. 400 ...	23 13	72 11	231·8	0·24	1	7·4	8·8	·737	W.B.
Σ 2900 ...	22 19	69 36	63·5	1·86	2	8·0	8·1	·865	W.B.
Σ 3020 ...	23 27	71 43	107·8	1·82	2	7·7	9·7	·842	W.B.
Ait. 1242 ...	23 38	78 40	273·6	0·51	1	9·0	9·0	·737	W.B.
AGC 14	23 39	61 8	196·8	0·98	2	5·0	8·1	·849	W.B.

Cent nouvelles étoiles doubles. 5ème Série.
Par Robert Jonckheere.

Cette liste fait suite aux précédentes publiées par les *Astronomisches Nachrichten* 4406, 4461, 4484, et 4510.

Les étoiles ont été découvertes à l'aide de l'équatorial de 35^{cm} et 6^{m} 50 de distance focale ; les mesures ont été prises avec un grossissement de 600 fois. Une mesure représente une moyenne de 10 mesures en distance (5 de double distance) et 10 en position.

Sur les 515 étoiles maintenant publiées, 21 ont une distance supérieure à 5″.

Voici la comparaison de ces chiffres avec les autres catalogues.

Catalogue.	Total.	Plus de 5″.	Pourcentage.
Σ	2640	1515	57
OΣ	547	202	37
HO	640	213	33
β	1335	243	18
J	515	21	4

Les 21 couples de plus de 5″ ont les composantes de grandeurs différant en moyenne de 6·57 grandeurs, l'étoile principale étant de 6·21 gr.

Les catalogues de Aitken et Hussey ne sont pas rentrés ici, ces observateurs rejetant systématiquement les étoiles de distance supérieure à 5″, et cela sans aucune considération des grandeurs.

Les étoiles ont, le plus souvent, été mesurées également par mon assistant M. J. Vanderdonck. Ses mesures se trouvent pour chaque étoile, immédiatement au-dessous de mes observations et pour mettre cette note dans le format des *Monthly Notices* la personnalité n'est pas autrement indiquée. Pour la même raison, l'abréviation des catalogues AG et BD n'est pas utilisée ; il ne peut je crois y avoir confusion.

J.	Catalogue.	Æ. 1920.	D.	Date. 1911.	P.	D.	Grandeurs.		n.
		h m s	° ′		°	″			
416	Strb. 3276	8 27 47	− 3 31	·137	192·2	0·27	8·9	9·1	3
				·204	185·3	0·25	8·9	9·1	1
417	−8° 2022	7 36 23	− 8 45	·283	355·9	1·91	9·5	11·5	1
418	Anon.	43 29	+ 1 34	·280	270·5	1·73	9·5	9·6	1
				·280	271·2	1·64	9·5	9·6	1
419	Anon.	49 10	− 7 52	·283	322·5	4·79	9·7	9·7	1
				·283	323·3	4·90	9·7	9·7	1
420	+2° 1871	8 2 4	+ 2 15	·283	183·2	1·84	9·3	9·3	1
				·283	181·6	1·82	9·4	9·4	1
421	Anon.	8 5	− 1 35	·283	277·7	2·50	9·6	9·8	1
				·283	276·6	2·10	9·7	9·7	1

J.	Catalogue.	Æ. 1920.	D.	Date. 1911.	P.	D.	Grandeurs.		n.
		h m	° ′		°	″			
422	Anon.	13 15	− 0 42	·143	76·2	4·20	9·6	10·0	1
				·143	75·5	4·06	9·6	10·2	1
423	Anon.	36 4	− 0 58	·143	285·8	5·00	9·5	12·0	1
				·143	282·8	5·09	9·6	12·0	1
424	Nic. 2803	9 5 36	+ 0 32	·245	134·0	0·95	8·8	9·5	2
				·245	133·8	1·01	8·8	9·7	2
425	−2° 2882	22 27	− 2 34	·256	186·8	2·27	9·3	9·5	2
				·256	186·5	2·10	9·4	9·6	1
	AC			·256	243·3	4·13	9·3	9·6	2
				·256	243·3	4·40	9·4	9·6	1
426	+4° 2264	52 00	+ 3 51	·256	209·1	3·04	8·7	8·7	2
				·256	209·9	3·12	8·8	8·8	2
427	Anon.	10 59 39	+ 16 29	·256	100·9	3·73	9·5	9·7	1
				·256	101·5	3·60	9·5	9·8	1
428	Anon.	11 28 52	+ 10 4	·306	255·1	4·00	9·7	10·4	2
				·316	254·8	4·16	9·9	10·7	1
429	Anon.	12 8 12	+ 5 43	·306	306·7	1·86	9·6	11·3	2
				·299	309·2	2·08	9·5	11·0	1
430	Anon.	12 13	− 1 19	·338	271·2	3·56	9·3	9·6	1
				·338	272·7	3·55	9·4	9·6	1
431	Anon.	25 27	− 0 36	·338	271·8	2·20	9·3	10·0	1
				·338	271·1	2·13	9·3	10·0	1
432	Alb. 4559	41 17	+ 3 58	·346	260·3	0·68	8·0	8·7	3
				·346	257·8	0·73	8·0	8·8	2
433	+0° 3007	55 29	− 0 15	·330	157·6	3·33	9·0	9·5	1
				·330	156·3	3·38	8·9	9·6	1
434	−0° 2661	13 4 24	− 0 26	·307	328·2	3·20	8·8	9·2	2
				·307	328·2	3·28	8·7	9·2	2
435	+3° 2751	13 17	+ 3 26	·368	151·9	3·05	9·3	9·8	1
				·368	153·5	2·95	9·4	10·0	1
436	+0° 3161	23 45	+ 0 12	·331	341·6	2·52	8·7	9·3	2
				·316	345·7	2·40	8·7	9·3	1
437	Anon.	42 50	+ 11 24	·368	20·4	4·02	9·4	11·0	1
				·368	23·0	4·19	9·4	10·8	1
438	+0° 3125	58 11	− 0 6	·323	251·7	3·29	8·8	9·5	2
				·323	252·1	3·19	8·7	9·5	2
439	+1° 2918	14 18 39	+ 1 1	·338	237·0	3·85	9·0	10·0	1
				·338	235·4	3·71	9·1	10·0	1
440	+0° 3267	50 22	+ 0 36	·409	35·8	2·36	9·1	9·1	1
				·409	36·5	2·17	9·2	9·2	1

J.	Catalogue.	Æ. 1920. h m s	D. ° ′	Date. 1911.	P. °	D. ″	Grandeurs.		n.
441	Anon.	15 5 44	+ 18 24	·401	156·5	3·15	9·3	9·8	1
				·401	154·7	3·46	9·5	10·0	1
442	Anon.	22 11	+ 3 23	·338	86·3	3·85	9·3	11·0	1
				·338	86·8	3·71	9·3	11·2	1
443	+7° 2969	24 51	+ 7 36	·404	234·5	4·28	8·9	11·8	1
				·404	237·6	3·90	8·9	11·3	1
444	Nic. 3976	37 44	− 0 33	·414	322·8	2·80	8·7	10·0	1
				·414	319·2	2·51	8·7	10·0	1
445	Anon.	57 36	+ 10 35	·404	294·9	3·11	9·7	10·0	1
				·404	296·8	3·20	9·5	9·5	1
446	Anon.	59 36	+ 10 38	·404	178·0	3·91	9·3	9·5	1
				·404	177·9	3·80	9·5	9·5	1
447	+6° 3274	16 36 48	+ 5 56	·499	237·5	5·00	8·9	9·7	1
				·499	238·4	5·10	9·0	9·8	1
448	Nic. 4200	39 44	− 0 23	·488	147·0	2·37	9·1	9·9	1
				·488	147·7	2·18	9·2	10·4	1
449	+1° 3373	17 1 3	+ 1 53	·488	298·2	1·17	8·8	9·5	1
				·488	299·0	1·25	9·0	9·6	1
450	Anon.	14 00	+ 7 37	·338	66·2	3·61	9·6	9·8	1
				·338	65·2	3·45	9·5	9·8	1
451	+4° 3392	15 6	+ 4 16	·404	247·0	4·22	8·9	11·5	1
				·404	249·3	4·00	8·9	11·2	1
452	+15° 3166	17 10	+ 15 28	·349	299·2	1·30	8·8	9·6	1
453	−1° 3354	28 46	− 1 26	·469	153·6	2·90	9·0	9·4	1
454	−1° 3361	30 36	− 1 22	·469	261·3	3·78	9·0	10·0	1
455	+15° 3239	36 1	+ 15 57	·349	197·8	2·29	9·1	9·4	1
				·349	200·2	2·18	9·1	9·5	1
456	Anon.	43 1	− 1 29	·480	101·8	2·63	9·5	9·5	1
				·480	100·6	2·52	9·5	9·5	1
457	Anon.	52 9	+ 8 27	·480	215·3	2·61	9·5	11·0	1
458	Anon.	52 25	+ 8 35	·480	121·3	3·37	9·3	11·0	1
				·480	116·5	3·12	9·3	11·0	1
459	Anon.	53 2	+ 18 8	·349	55·7	2·82	9·1	9·9	1
				·349	55·6	2·76	9·3	11·0	1
460	Anon.	18 0 51	+ 3 31	·488	93·2	1·26	9·5	9·5	1
				·488	92·0	1·39	9·5	9·5	1
461	−16° 4876	21 58	− 16 14	·404	356·4	2·77	9·3	9·5	1
				·404	355·3	2·46	9·4	9·4	1
462	Anon.	22 8	+ 3 57	·480	351·3	4·03	9·5	9·6	1
				·480	349·9	3·73	9·5	9·6	1

J.	Catalogue.	Æ. 1920.	D.	Date. 1911.	P.	D.	Grandeurs.		n.
		h m s	° ′		°	″			
463	+22° 3407	30 0	+ 22 57	·450	41·5	0·98	9·4	9·4	1
				·450	40·5	0·97	9·4	9·4	1
464	Anon.	38 28	+ 3 29	·480	138·7	2·16	9·4	10·5	1
				·480	138·4	2·00	9·5	10·5	1
465	−11° 4737	40 44	− 11 8	·404	213·5	2·40	9·3	9·5	1
				·404	209·3	2·26	9·4	9·4	1
466	Anon.	41 2	+ 19 8	·461	210·8	2·21	9·6	9·8	1
467	Anon.	41 41	− 10 25	·404	88·8	1·95	9·5	9·7	1
				·404	94·0	2·12	9·5	9·5	1
468	+12° 3675	46 34	+ 12 22	·330	334·1	1·20	9·5	11·5	1
469	Anon.	46 42	+ 12 36	·330	112·0	2·66	9·5	10·0	1
470	Anon.	47 21	+ 19 19	·461	309·4	3·58	9·5	9·6	1
471	Anon.	52 11	+ 10 58	·358	291·2	4·62	9·5	12·2	2
472	Anon.	52 44	− 0 40	·414	122·3	4·92	9·7	9·7	1
				·414	122·7	4·64	9·6	9·7	1
473	Anon.	55 21	+ 11 42	·401	161·0	3·56	9·5	9·6	1
				·401	160·0	3·58	9·5	9·9	1
474	Alb. 6464	56 10	+ 2 30	·502	99·4	2·84	8·8	9·4	1
475	−0° 3630	58 29	− 0 33	·414	243·4	1·67	9·5	9·6	1
476	Anon.	59 37	− 0 32	·414	115·2	4·22	9·5	9·7	1
				·414	115·3	4·21	9·6	9·8	1
477	Lpz. I. 7008	19 0 22	+ 10 59	·387	156·8	5·00	8·5	9·3	1
				·387	159·1	5·14	8·6	9·3	1
478	+12° 3794	1 18	+ 12 55	·338	339·8	1·79	9·3	9·5	1
				·338	341·1	1·79	9·2	9·4	1
479	Anon.	4 40	+ 1 6	·401	21·8	3·05	9·5	11·0	1
				·401	21·2	3·40	9·5	11·2	1
480	Anon.	5 51	+ 15 3	·330	295·5	4·71	9·5	9·6	1
				·330	293·6	4·60	9·6	9·7	1
481	+19° 3936	7 19	+ 20 5	·461	233·0	5·00	9·4	9·7	1
	AC			·461	31·9	12·06	9·4	11·0	1
482	Anon.	7 55	− 12 43	·461	295·3	2·57	9·5	9·7	1
483	Anon.	11 43	+ 15 14	·338	216·0	2·35	9·4	10·0	1
				·338	213·8	22·3	9·5	10·0	1
	AC			·338	161·5	26·		14·5	1
484	Anon.	13 12	+ 0 14	·414	271·5	4·76	9·6	9·7	1
				·414	273·5	4·70	9·5	9·5	1
485	+5 4112	15 26	+ 5 26	·502	77·4	1·18	9·3	9·9	1
486	+15° 3853	28 49	+ 15 40	·338	167·5	3·32	9·4	9·5	1
				·338	166·6	3·18	9·3	9·4	1

J.	Catalogue.	Æ. 1920.	D.	Date. 1911.	P.	D.	Grandeurs.		n.
		h m s	° ′		°	″			
487	Anon.	30 10	+ 7 56	·387	183·9	3·79	9·5	11·8	1
488	Alb. 6776	35 12	+ 2 8	·414	320·7	1·72	8·9	12·0	1
				·414	312·1	2·00	8·9	12·2	1
489	Anon.	39 43	+ 2 27	·412	97·0	3·07	9·4	10·0	1
				·412	97·9	2·74	9·5	11·5	1
490	Anon.	39 45	+ 23 7	·521	107·1	2·98	9·2	13·0	1
	AC			·521	51·1	3·94		13·0	1
491	Anon.	41 37	+ 23 48	·521	70·7	4·30	9·5	10·5	1
				·521	68·0	4·11	9·5	10·6	1
492	+23° 3758	41 42	+ 23 47	·521	292·8	4·95	9·4	9·9	1
				·521	295·0	4·61	9·4	9·8	1
493	Lpz. II. 9554	43 49	+ 9 43	·387	117·4	4·96	8·7	14·0	1
494	Anon.	44 9	+ 11 3	·431	150·5	3·27	9·6	10·0	1
				·431	149·5	2·97	9·5	10·5	1
495	Anon.	44 59	+ 3 4	·412	28·0	4·49	9·5	11·5	1
496	Anon.	46 21	+ 23 12	·431	82·6	4·27	9·3	10·0	1
				·431	83·6	4·28	9·1	9·9	1
497	Anon.	48 2	+ 0 39	·412	132·5	3·31	9·4	12·0	1
498	Anon.	50 24	+ 19 45	·431	91·2	1·62	9·1	9·7	1
				·431	91·1	1·87	9·0	10·0	1
499	Anon.	52 30	+ 17 55	·338	221·0	2·11	9·7	11·8	1
500	Anon.	53 36	+ 24 25	·521	294·3	3·85	9·5	9·9	2
				·521	295·0	3·63	9·5	9·8	2
501	Anon.	56 19	+ 12 48	·401	89·1	3·07	9·6	9·7	1
				·401	87·9	2·83	9·5	9·7	1
502	+17° 4192	57 20	+ 18 1	·338	59·3	3·89	9·4	9·5	1
				·338	63·1	3·50	9·3	9·5	1
503	Anon.	20 2 4	+ 11 30	·330	297·2	4·45	9·5	9·6	1
				·330	297·5	4·37	9·6	9·6	1
504	Anon.	2 18	+ 24 28	·431	183·1	4·30	9·5	9·5	1
				·431	182·4	4·19	9·5	9·5	1
505	Anon.	6 53	+ 9 51	·450	44·5	2·48	9·5	13·0	1
506	Anon.	7 10	+ 18 13	·330	307·2	3·47	9·5	9·6	1
				·330	305·8	3·31	9·6	9·7	1
507	Anon.	12 12	+ 18 34	·338	53·3	4·53	9·5	10·7	1
				·338	53·8	4·60	9·5	10·9	1
508	Anon.	12 25	+ 18 35	·338	150·4	2·95	9·5	9·7	1
				·338	148·9	2·69	9·5	9·8	1
509	Anon.	22 2	+ 27 11	·412	265·2	4·32	9·8	10·0	1

J.	Catalogue.	R. 1920.	D. 1920.	Date. 1911.	P.	D.	Grandeurs.		n.
		h m s	° ′		°	″			
510	Berl. A 8206	26 8	+ 16 58	·401	239·4	3·31	8·8	12·6	1
				·401	242·1	3·48	8·9	13·0	1
511	Anon.	37 38	+ 25 3	·453	359·5	1·09	9·6	9·7	1
512	Anon.	37 57	+ 24 45	·431	89·9	1·38	9·5	9·8	1
				·431	90·7	1·67	9·5	9·8	1
513	+27° 3839	39 33	+ 27 16	·453	161·9	3·81	8·9	11·5	1
514	Anon.	42 37	+ 22 5	·453	146·5	2·24	9·6	9·7	1
515	+36° 196	1 5 19	+ 36 38	·401	177·5	3·78	9·0	9·0	1
				·401	179·1	3·64	9·1	9·1	1

416. Je crois que l'allongement est réel. Il se pourrait que ce couple soit accompagné d'une étoile de 15^{e} grandeur à 5″ ± 100° ±.

432. Beau couple assez serré. Les A. G. donnent la grandeur 8, 3.

Hem:
le 11 *Juillet* 1911.

Erratum.

M.N., vol. lxxi., Plate 16, facing p. 695.
Fig. 1, Galactic distribution of planetary nebulæ, is inverted.

LIST OF ADDITIONS

TO THE LIBRARY

OF THE SOCIETY

JUNE 1910 TO JUNE 1911.

An asterisk (*) indicates that the work is an excerpt.

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